

DAM REHABILITATION AND IMPROVEMENT PROJECT (DRIP) II
(Funded by World Bank)

SOM KAMLA AMBA DAM

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT



February 2020

(Draft Report)

Office of Additional Chief Engineer
Water Resources Department
Government of Rajasthan
Water Resources Zone, Jaipur-302001
Tel: 0141-2702353, e-mail: acejpr.wr@gmail.com

CONTENTS

	Page No.
CHAPTER 1: INTRODUCTION	
1.1 PROJECT OVERVIEW	1
1.2 SUB-PROJECT DESCRIPTION – SOM KAMLA AMBA DAM	2
1.3 PURPOSE OF ESIA	7
1.4 APPROACH AND METHODOLOGY OF ESIA	7
CHAPTER 2: LEGAL, REGULATORY AND INSTITUTIONAL FRAMEWORK	
2.1 APPLICABILITY ANALYSIS OF INDIAN REGULATION	8
2.2 APPLICABILITY ANALYSIS OF WB ENVIRONMENT AND SOCIAL FRAMEWORK	19
2.3 INSTITUTIONAL FRAMEWORK	22
CHAPTER 3: OVERVIEW OF ENVIRONMENTAL AND SOCIAL CONDITIONS	
3.1 PHYSICAL ENVIRONMENT	23
3.2 BIOLOGICAL ENVIRONMENT	25
3.3 PROTECTED AREA	26
3.4 SOCIAL ENVIRONMENT	26
3.5 CULTURAL ENVIRONMENT	27
CHAPTER 4: STAKEHOLDERS CONSULTATION	
4.1 STAKEHOLDERS CONSULTATION	28
CHAPTER 5: ENVIRONMENTAL & SOCIAL RISKS AND IMPACTS	
5.1 ASSESSMENT AND MANAGEMENT OF E&S RISK AND IMPACT (ESS 1)	30
5.2 LABOUR AND WORKING CONDITIONS (ESS 2)	31
5.3 RESOURCE EFFICIENCY AND POLLUTION PREVENTION AND MANAGEMENT (ESS 3)	32
5.4 COMMUNITY HEALTH AND SAFETY (ESS 4)	35
5.5 INDIGENEOUS PEOPLE/SUB-SAHARAN AFRICAN HISTORICALLY UNDERSERVED TRADITIONAL LOCAL COMMUNITIES (ESS 7)	36
CHAPTER 6: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	
6.1 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	37
6.2 MONITORING REPORTING AND BUDGETING	41
6.3 ENVIRONMENTAL AND SOCIAL COMMITMENT PLAN (ESCP) AND OTHER REQUIREMENTS	41

List of Tables

Table 2.1: Applicability Analysis	9
Table 2.2: Relevance and requirements ESF Policy, Standards and Directives	19
Table 3.1: Water Quality of Som Kamla Amba Reservoir	24

List of Figures

Figure 1.1: Selected Photographs of Improvement/Intervention area	5
Figure 1.2: Project Area showing major intervention locations	6
Figure 3.1: Land Use and Land Cover Map of 5 Km radius around Dam site	23
Figure 3.2: Map showing location of Protected Areas wrt Som Kamla Amba Dam	26

List of Annexures

Annexure I: Socio-economic Profile of Proximity villages (Study Area)	42-50
---	-------

ABBREVIATIONS AND ACRONYMS

AIBP	:	Accelerated Irrigation Benefit Program
AIDS	:	Acquired Immunodeficiency Syndrome
ASHA	:	Accredited Social Health Activist
ASI	:	Archaeological Survey of India
AWS	:	Automatic Weather Station
BOCWW	:	Building and Other Construction Workers Welfare
CCA	:	Culturable Command Area
CPCB	:	Central Pollution Control Board
CRZ	:	Coastal Regulation Zone
CWC	:	Central Water Commission
DEIAA	:	District Environment Impact Assessment Authority
DRIP	:	Dam Rehabilitation and Improvement Project
EAP	:	Emergency Action Plan
ERP	:	Emergency Response Procedure
ESCP	:	Environmental and Social Commitment Plan
ESF	:	Environmental and Social Framework
ESIA	:	Environmental and Social Impact Assessment
ESS	:	Environmental and Social Standards
FI	:	Financial Intermediaries
FSI	:	Forest Survey of India
GBV	:	Gender Based Violence
GCA	:	Gross Command Area
GIS	:	Geographic Information System
GRM	:	Grievance Redressal Mechanism
HIV	:	Human Immunodeficiency Virus
ICDS	:	Integrated Child Development Services
ID&R	:	Investigation Design & Research
IGND	:	Indira Gandhi Nahar Division
IPF	:	Investment Project Financing
IS	:	Indian Standards
JICA	:	Japan International Cooperation Agency
JTU	:	Jackson Turbidity Unit
LMC	:	Left Main Canal
LMP	:	Labour Management Procedure
MCM	:	Million Cubic Meters
MDDL	:	Minimum Draw Down Level
MJSA	:	Mukhyamantri Jal Swavlamban Abhiyan
MOEF&CC	:	Ministry of Environment, Forest & Climate Change
MSDS	:	Material Safety Data Sheets
MSIHC	:	Manufacture Storage & Imports of Hazardous Chemicals
MWL	:	Maximum Water Level
NAAQS	:	National Ambient Air Quality Standards
NH	:	National Highway
NTU	:	Nephelometric Turbidity Unit
O&M	:	Operation & Maintenance
OBC	:	Other Backward Class
OHS	:	Occupational Health & Safety
PESO	:	Petroleum and Explosives Safety Organization
PMKSY	:	Pradhan Mantri Krishi Sinchayee Yojana

PMU	:	Project Management Unit
PPE	:	Personal Protective Equipment
PST	:	Project Screening Template
PUC	:	Pollution Under Control
PWD	:	Public Work Department
RCC	:	Reinforced Cement Concrete
RMC	:	Right Main Canal
SC	:	Scheduled Castes
SCADA	:	Supervisory Control and Data Acquisition
SEF	:	Stakeholder Engagement Framework
SEIAA	:	State Environment Impact Assessment Authority
SH	:	State Highway
SHG	:	Self-Help Group
SPCB	:	State Pollution Control Board
SPMU	:	State Project Management Unit
ST	:	Scheduled Tribe
TMC	:	Thousand Million Cubic Feet
WLS	:	Wildlife Sanctuary
WRD	:	Water Resources Department

1.1 PROJECT OVERVIEW

The proposed Dam Rehabilitation and Improvement Project (DRIP-2) would complement the suite of ongoing and pipeline operations supporting India's dam safety program. The project would continue to finance structural improvements but would break with the prevailing build-neglect-rebuild approach by giving greater emphasis to establishing sustainable mechanisms for financing regular O&M and dam rehabilitation, enhancing State capabilities to manage these critical assets through institutional strengthening, and introducing risk-informed dam safety management. The project development objective (PDO) is to increase the safety of selected dams and to strengthen institutional capacity for dam safety in participating States. Project Components include:

Component 1: Institutional Strengthening (US\$ 40 million): This component supports further strengthening of dam safety management in the country through institutional modernization. A major focus of activities under this component will be increasing the oversight of dam safety by developing dam safety guidelines and by strengthening the capacity of various dam safety actors to carry out the regulatory functions defined in the proposed Dam Safety Bill, which has been passed by the Lok Sabha.

Component 2: Risk-informed Asset Management and Sustainable Financing (US\$ 25 million): This component supports identifying long-term funding needs for dam safety based on asset management and risk assessment financing for dam safety. This component would focus on: (i) improving the efficiency of public financing; (ii) generating alternative revenue streams. Alternative revenue streams that could be developed include tourism and water recreational activities, fisheries, and other innovative schemes such as floating solar panels; and (iii) establishing financing arrangements for dam safety (e.g., dedicated budget lines).

Component 3: Rehabilitation of Dams and Appurtenant Structures (US\$ 200 million): This component supports improving the safety of dams through structural and non-structural interventions. Structural measures could include measures for seepage reduction (e.g., grouting, geomembranes), hydrological and structural safety measures (e.g., additional spillways, fuse plugs), enhancing the reliability of operational facilities (e.g., gates), rehabilitating foundation deficiencies, strengthening dam concrete/embankment structures, and improving basic dam facilities (e.g., access roads). Non-structural measures could include standardized dam safety instrumentation, monitoring, assessment and reporting protocols for dam health; flood forecasting and early warning systems; integrated reservoir operations including streamflow forecasting for climate resilient dam management; preparation and implementation of EAPs; preparation and implementation of sediment management plans; and revised operational rule curves to account for climate change.

Component 4: Project Management (US\$ 15 million): This component will ensure effective implementation of project activities and monitoring and evaluating project implementation progress, outputs and outcomes. The component will support: (i) establishment of the Central Project Management Unit (CPMU), which will oversee and coordinate activities of the implementing agencies of the project, supported by a Engineering and Management Consultant (EMC), which is currently being procured; (ii) establishment and operations of State level Project Management Units (SPMUs) within State implementing agencies, which can hire experts in various fields as and when needed on a contractual basis; (iii) setting up of a monitoring and evaluation system; and (iv) establishment of a Quality Assurance and Quality Control system. This component will also finance consultancies, as well as related material, office equipment and incremental operating costs. The project will provide investment and technical support for the establishment of a Management Information System and Information and Communication Technology systems.

1.2 SUB-PROJECT DESCRIPTION – SOM KAMLA AMBA DAM

The construction of Som Kamla Amba Project across Som river, a tributary of Mahi river was completed in the year 1992. The dam is located in Ashpur Tehsil of Dungarpur District, Rajasthan to provide the Irrigation cum drinking water facilities. The dam supplies drinking water to the tune of 8.1 MCM., besides irrigation supply to 26998.6 ha of Gross Command Area (GCA) and 19155.42 ha of Culturable Command Area (CCA). Salient features of the project area as reported below:

Project	Som Kamla Amba Project
River	Som river, a tributary of Mahi
Lat/Long	23 ^o 58' 00"/ 74 ^o 02' 00"
GCA	26998.60 ha
CCA	19155.42 ha
Annual water supply	8.01 MCM
Catchment Area	5376 sq km
Main Dam	
Type	Earthen Dam
Length	620 m
Top elevation	217.50 m
Height of dam above lowest river bed level	27 m
Lowest river bed level	190.5 m
Spillway	
Type	Ogee spillway
Length	244 m
Location of spillway	Central spillway
Crest level	335.40 m
Number of bays	13
Discharge capacity at MWL	20045 cumec
Size of spillway gate	15 m wide and 12.885 m high
Reservoir	
Maximum water level	215.50 m
Full Reservoir Level	33.50 m
MDDL	200.50 m
Live storage	160.30 MCM
Gross storage	172.80 MCM
Reservoir spread area	36.18 sq km
Year of start of construction	1977
Date of completion	1992
Year of first impoundment	2004



View of the Dam

Proposed Interventions/ Activities at Som Kamla Amba Dam

The following rehabilitation proposals have been formulated and same are described in PST. Present ESIA report has been prepared for these proposals/interventions:

Structural Rehabilitation Works

Civil Work including Paint

1. Resetting of disturbed upstream (U/S) Rip Rap
2. Cleaning/Reaming of drainage holes in dam gallery
3. Repairs to parapet walls of dam
4. Extension of downstream (D/S) guide walls right side (R/S) of dam & repair of left side (L/S) ,downstream(D/S) guide wall
5. General maintenance and upkeep of 13 No's radial gates and hoist bridge of dam
6. Construction of toe drain for seepage control at saddle no 2 & 3
7. Repair and renovation of gallery
8. Construction of control room for new DG set
9. Repair of Damages to piers of spillway

Electro-mechanical Work

10. Repair /replacement of canal sluice gate of LMC, RMC & Bhabhrana
11. General maintenance and up keeping of 13 No's radial gates and hoist bridge
12. Supply and installation of one 180 KVA DG Set

13. Providing Lighting over Dam and surrounding area
14. Lighting arrangement of foundation gallery
15. Repairs of Gantry Crane
16. Supply and fixing of new steel wire rope of 09 nos. radial gates
17. Renovation of centralized control system for operating of 13 Nos. radial crest gates

Basic facilities improvement

18. Renovation of Approach Road to dam upto Karakala Dam Site Entry Gate
19. Renovation of existing rest house and surrounding area of dam
20. Providing and installing of lightning arrester at dam
21. Renovation of control room tower of dam

Instrumentation, SCADA, Surveillance system, etc

22. Installation of instrumentation on Dam

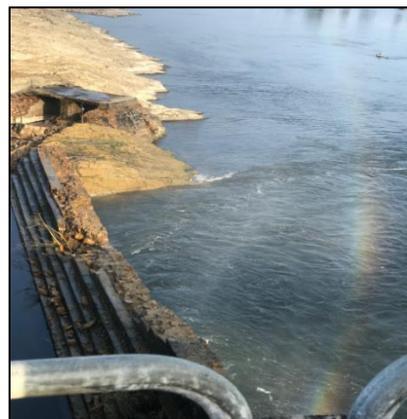
Figures 1.1 and 1.2 provide photographs of key infrastructure proposed for rehabilitation works and also major interventions locations.

Implementation Schedule

Timelines for implementing above proposals has been proposed as 36 months.



Broken wire rope of Gate no 4,5,6,7,8 & 10



Damaged D/S left side guide wall



Damaged bridge parapet wall



Non-functional driving units of gantry crane



Damaged magnetic breaks of Dam radial gate



Leaching in dam foundation gallery



Damaged rubber seal of dam radial gate



Damaged Dam approach road



Damaged pathways for gallery approach from rest house



Rusting of radial gates and hoist bridge arrangement of Dam



Disturbed Rip Rap of U/S face of Dam



Seepage on D/S from saddle 2 & 3 due to damaged toe drain

Figure 1.1: Selected Photographs of Improvement/Intervention area



Figure 1.2: Project Area showing major intervention locations

1.3 PURPOSE OF ESIA

The overall project (DRIP II) was categorized as **High Risk** as per the internal Environment and Social Risk Classification of the Bank. Hence, a separate agency was contracted to conduct the Environment and Social Impact Assessment to use it as a tool for decision-making on the sub-project. Specifically, the objectives of the ESIA are:

- i. To identify, evaluate and manage the environment and social risks and impacts of the project in a manner consistent with the ESSs;
- ii. To adopt a mitigation hierarchy approach to the project's E&S risks i.e. a) anticipate and avoid risks and impacts; b) minimize or reduce risks and impacts to acceptable levels, if not avoidable; c) once risks and impacts have been minimized or reduced, mitigate; and (d) where significant residual impacts remain, compensate for or offset them, where technically and financially feasible;
- iii. To help identify differentiated impacts on the disadvantaged or vulnerable and to identify differentiated measures to mitigate such impacts, wherever applicable;
- iv. To assess the relevance and applicability of environmental and social institutions, systems, laws, regulations and procedures in the assessment, development and implementation of projects, whenever appropriate; identify gaps, if any exist, and
- v. To assess borrower's existing capacity, gaps therein, and identify areas for enhanced capacity towards management of E&S risks.

1.4 APPROACH AND METHODOLOGY OF ESIA

The following approach has been adopted for ESIA:

- i. Study sub-project information, proposed interventions, their magnitude and locations and carry out assessment of each proposed intervention to identify the magnitude of E&S risk and impacts;
- ii. Conduct site visit to understand baseline environment and social settings, proposed activities under the sub-project, their location and sensitivity, if any.
- iii. Conduct stakeholder consultations to help identify potential stakeholders; to provide information on the proposed interventions; to identify issues and concerns; and finally ascertain appropriate mechanisms for continued engagement
- iv. Prepare baseline data essential for impact assessment in immediate vicinity area of proposed interventions from secondary sources, such as land-use, protected areas in vicinity, habitation, access roads, ascertain presence of indigenous (schedule tribe)/vulnerable people, etc.
- v. Review relevance and applicability of national and state legal requirements and Bank's ESF policy, standards and directives and preliminary assessment of impacts as per ESS framework (2-8), suggest mitigation measures in accordance with the requirements of each applicable standard
- vi. Undertake institutional assessment to identify existing capacities & relevant gaps to manage E&S risks and impacts

All formats used for collection of the above information, checklists used for consultations and photographs towards preparation of the Draft ESIA report are available in the project files.

India has well defined environmental and social regulatory framework. The regulation applicability depends on nature of work and location of work. Broadly legislation can be divided into four categories viz environmental, social, wildlife protection, and forests conservation. The applicability of environmental laws to dam are mostly at setting up new dams compared to rehabilitation stage. The applicability analysis of regulations pertaining to all the above four categories is carried out and summarized at section 2.1.

Central Water Commission, Ministry of Jal Shakti, Government of India has also prepared “Operational Procedures for Assessing and Managing Environmental Impacts in Existing Dam Projects” as a guiding document for the dam owners to systematically address in advance the environmental safeguard requirements and have discussed in detail all applicable legal requirement. Reference has been drawn from this document as well while carrying out applicability analysis.

The World Bank ESF comprises 10 ESSs (ESS1 to ESS10) and 2 Directives. The applicability of each standard to the proposed rehabilitation proposals and standard specific requirements is analysed and presented at Section 2.2.

2.1 APPLICABILITY ANALYSIS OF INDIAN REGULATION

The regulatory applicability analysis to the proposed rehabilitation work has been carried out considering nature of improvements, methodology of construction/improvement, material requirement, sourcing and transportation mode, and waste generation. The regulatory applicability analysis is summarised at **Table 2.1** below.

Table 2.1: Applicability Analysis

S. No.	Legislation	Purpose	Applicability	Reason	Type of permit/specific action and stage of applicability	Administrative Authority
1	Environment Protection Act/Rules-1986	To protect and improve overall environment	Yes	Applicable to all activities in general	None	MoEF&CC
2	The Forest (Conservation) Act, 1980 and amendments and The Forest (conservation) Rules 1981 and amendments	To help conserve the country's forests. It strictly restricts and regulates the de-reservation of forests or use of forest land for non-forest purposes without the prior approval of the Government. To this end the Act lays down the pre-requisites for the diversion of forest land for non-forest purposes	No	No diversion of forest land involved	None	Forest Department
3	Rajasthan Forest Act, 1953	Conservation of forest and control felling of trees	No	No tree will be felled for proposed intervention	None	Forest Department
4	Coastal Regulation Zone (CRZ) notification 2011 and amendment till date	To regulate development activities within the 500 m of high tide line in coastal zone and 100 m of tidal influence rivers.	No	Project is not located in coastal area	None	SCZMA,
5	Air (Prevention and Control of Pollution) Act, 1981, 1987	An act to prevent and control Air pollution	Yes	Air pollution from proposed activities During construction stage	Consent to establish and operate by contractor for operation of DG sets and any other air pollution system like ready mix plant etc.	SPCB
6	Water Prevention and Control of Pollution) Act, 1974, 1988	An Act to prevent and control water pollution.	Yes	Water pollution from proposed activities during construction stage	Consent to establish and operate by contractor for setting up construction camp/labour camp	SPCB

S. No.	Legislation	Purpose	Applicability	Reason	Type of permit/specific action and stage of applicability	Administrative Authority
7	Noise Pollution (Regulation and Control Act) 2000 and amendment till date	Ambient Noise Standards for different areas and zones	Yes	Noise emission from proposed activities during construction stage like operation of DG sets	None	CPCB & SPCB
8	Hazardous & Other Waste (Management and Trans-boundary Movement) Rules, 2016	Protection to general public against improper handling storage and disposal of hazardous waste. The rules prescribe the management requirement of hazardous wastes from its generation to final disposal.	Yes	Hazardous waste generation from proposed activities like generation of paints waste, used oil/waste oil.	Authorisation for handling of hazardous wastes	SPCB
9	Manufacture Storage, & imports of Hazardous Chemicals (MSIHC) Rules, 1989 as amended till date	Usage and storage of hazardous substances	Yes	Painting is proposed which will require use of solvents/thinners which will falls under hazardous chemicals category	Arrange MSDS and store quantity of hazardous chemicals below threshold quantity	Chief Inspector of Factories
10	The Batteries (Management and Handling) Rules 2001	To regulate the disposal and recycling of lead acid batteries	No	Batteries will not be used for proposed activities	None	SPCB
11	Construction and Demolition Waste Management Rules , 2016	To manage the demolition and construction waste and prevent environmental degradation	Yes	Construction and demolition waste will be generated from proposed activities	Contractor needs to submit plan for reuse or safe disposal	Local bodies of the area
12	Solid Waste Management Rules, 2016	To manage solid waste or semi-solid domestic waste, sanitary waste,	Yes	Solid Waste will be generated from proposed activities due to influx of labour	Contractor needs to submit plants for its safe disposal/burial	Local bodies of the area
13	Motor Vehicle Act 1988 and amendment till date	To minimize the road accidents, penalizing the guilty, provision of compensation to victim and family and check vehicular air and noise pollution.	Yes	Transportation of manpower and material	None	Motor Vehicle Department (Licensing authority, registration authority & State Transport Authorities)

S. No.	Legislation	Purpose	Applicability	Reason	Type of permit/specific action and stage of applicability	Administrative Authority
14	The Gas Cylinder Rules 2016	To regulate the storage of gas / possession of gas cylinder more than the exempted quantity.	Yes	gas cylinders will be used during welding and other electromechanical work. Storage within threshold quantity and as per capability analysis. Handling with define safe practices	None	PESO
15	Ancient Monuments and Archaeological Sites and Remains Act, 1958	Conservation of cultural and historical remains found in India.	Yes	Presence of historical sites of archaeological importance	None	Archaeological Dept. Gol
16	Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996	To regulate the employment and conditions of service of buildings and other construction workers and to provide for their safety, health and welfare measures and for other matters connected therewith or incidental thereto.	Yes	Involvement of workforce/labour	None	Labour Commissioner
17	Plastic waste management Rules, 2016	To manage the plastic waste generated so as it does not affect the water pipeline, animals and other environmental components	Yes	Plastic waste generation from proposed activities. Safe disposal as per Rules	None	Local bodies of the area
18	E-Waste Management Rules, 2016	Protection of environment against improper handling storage and disposal of hazardous waste.	Yes	E-waste generation from replacement of instrumentation. Safe disposal as per rules	None	CPCB &SPCB
19	Rajasthan Minor, Mineral Concession Rules, 2017	Control of extraction, collection and removal of minor minerals	Yes	requirement of construction material from quarries and borrow areas	None	Mines Department/ DEIAA/SEIAA
20	The Right to Fair Compensation and Transparency in Land	Regulates land acquisition and lays down the procedure and rules for granting compensation, rehabilitation	No	Land Acquisition is not involved	None	Revenue Department/District Administration

S. No.	Legislation	Purpose	Applicability	Reason	Type of permit/specific action and stage of applicability	Administrative Authority
	Acquisition, Rehabilitation and Resettlement Act, 2013	and resettlement to the affected persons				
21	Rights of Persons with Disabilities Act, 2016	Ensures that the Persons with Disability (PWD) enjoy the right to equality, life with dignity, and respect for his or her own integrity equally with others.	Yes	Persons with disability	None	
22	Right To Information Act, 2005	Mandates timely response to citizen requests for government information	Yes	Borrower is government organization	None	Any Government Department
23	Article 366 (25) of the Constitution of India Article 244(1) of Constitution of India - The Fifth Schedule under Article 244(1) of a subsequent Act of Constitution “Scheduled Areas” as such areas as the President may by order declare to be Scheduled Areas after consultation with Governor of that State.	Defines following essential characteristics, for a community to be identified as Scheduled Tribes are; <ul style="list-style-type: none"> • Indications of primitive traits; • Distinctive culture; • Shyness of contact with the community at large; • Geographical isolation; and • Backwardness. <p>The criteria for declaring any area as a “Scheduled Area” under the Fifth Schedule are; (a) preponderance of tribal population, (b) compactness and reasonable size of the area, (c) a viable administrative entity such as a district, block or Taluka, and (d) economic backwardness of the area as compared to the neighbouring areas.</p>	Yes	Dam is located in Scheduled Area	None	Government of India
24	Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	To recognize and vest the forest rights and occupation in forest land in forest dwelling STs and other traditional forest dwellers who are residing in such forests for generations but whose	No	No such activities impacting tribes and their rights are proposed	None	Ministry of Tribal Affairs

S. No.	Legislation	Purpose	Applicability	Reason	Type of permit/specific action and stage of applicability	Administrative Authority
		rights could not be recorded. Its objective is to facilitate the overall development and welfare of the tribal people by empowering them socially, economically, politically without any impact on their culture, habitation and tradition and in terms of their age old rights and privileges.				
25	Panchayats (Extension to the Scheduled Areas) Act, 1996	The Gram Sabha or the Panchayats at the appropriate level shall be consulted before making the acquisition of land in the Scheduled Areas for development projects and before re-settling or rehabilitating persons affected by such projects in the Scheduled Areas.	No	As no structural intervention is planned. Only awareness generation on EAP preparation and implementation shall take place in these areas.	None	Concerned State Government and Tribal Welfare Department
26	Major Labour Laws Applicable To Establishments Engaged In Building And Other Construction Work					
1	Employees Compensation Act 1923	The Act provides for compensation in case of injury, disease or death arising out of and during the course of employment.	Yes	Contractor/Labour engagement	None	Commissioner for Workmen's Compensation
2	Payment of Gratuity Act 1972	Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years' service or more or on death at the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.	Yes	Contractor/Labour engagement	None	Chief Labour Commissioner
3	Employees P.F. and Miscellaneous Provision Act 1952 (<i>since amended</i>)	The Act provides for monthly contribution by the employer plus workers @ 10% or 8.33%. The benefits payable under the Act are:	Yes	Contractor/Labour engagement	None	Ministry of Labour

S. No.	Legislation	Purpose	Applicability	Reason	Type of permit/specific action and stage of applicability	Administrative Authority
4	Maternity Benefit Act 1961	The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.	Yes	Contractor/Labour engagement	None	Chief Labour Commissioner
5	Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act, 2013	This Act defines sexual harassment in the workplace, provides for an enquiry procedure in case of complaints and mandates the setting up of an Internal Complaints Committee or a Local Complaints Committee	Yes	Contractor/Labour engagement	None	District Officer (District Magistrate or Additional District Magistrate or the Collector or Deputy Collector)
6	Contract Labour (Regulation & Abolition) Act 1970	The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by law. The Principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ 20 or more contract labour.	Yes	Contractor/Labour engagement	None	Chief labour Commissioner
7	Minimum Wages Act 1948	The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, Runways are scheduled employments.	Yes	Contractor/Labour engagement	None	Chief labour Commissioner
8	Payment of Wages Act 1936	It lays down the mode, manner and by what date the wages are to be paid, what deductions can be made from the wages of the workers.	Yes	Contractor/Labour engagement	None	Chief labour Commissioner
9	Equal Remuneration Act 1976	The Act provides for payment of equal wages for work of equal nature to male and female workers and for not making discrimination against Female	Yes	Contractor/Labour engagement	None	Chief labour Commissioner

S. No.	Legislation	Purpose	Applicability	Reason	Type of permit/specific action and stage of applicability	Administrative Authority
		employees in the matters of transfers, training and promotions etc.				
10	Payment of Bonus Act 1965	The Act is applicable to all establishments employing 20 or more employees. Some of the State Governments have reduced this requirement from 20 to 10. The Act provides for payments of annual bonus subject to a minimum of 8.33% of the wages drawn in the relevant year. It applies to skilled or unskilled manual, supervisory, managerial, administrative, technical or clerical work for hire or reward to employees who draw a salary of Rs. 10,000/- per month or less. To be eligible for bonus, the employee should have worked in the establishment for not less than 30 working days in the relevant year. The Act does not apply to certain establishments.	Yes	Contractor/Labour engagement		Chief labour Commissioner
11	Industrial Disputes Act 1947	the Act lays down the machinery and procedure for resolution of Industrial disputes, in what situations, a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.	Yes	Contractor/Labour engagement	None	Ministry of Labour and Employment
12	Trade Unions Act 1926	The Act lays down the procedure for registration of trade unions of workmen and employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities.	Yes	Contractor/Labour engagement	None	Ministry of Labour and Employment
13	Child Labour (Prohibition & Regulation) Act 1986	The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides	Yes	Contractor/Labour engagement	None	Chief labour Commissioner

S. No.	Legislation	Purpose	Applicability	Reason	Type of permit/specific action and stage of applicability	Administrative Authority
		for regulation of employment of children in all other occupations and processes. Employment of Child Labour is prohibited in the Building and Construction Industry.				
14	Inter-State Migrant workmen's (Regulation of Employment & Conditions of Service) Act 1979	The Act is applicable to an establishment which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home up to the establishment and back, etc.	Yes	Contractor/Labour engagement	None	Chief labour Commissioner
15	The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996 and the Building and Other Construction Workers Welfare Cess Act, 1996 (BOCWW Cess Act)	All the establishments who carry on any building or other construction work and employ 10 or more workers are covered under these Acts. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be notified by the Government. The Employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as Canteens, First – Aid facilities, Ambulance, Housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.	Yes	Contractor/Labour engagement	None	Chief labour Commissioner

S. No.	Legislation	Purpose	Applicability	Reason	Type of permit/specific action and stage of applicability	Administrative Authority
16	Factories Act 1948	the Act lays down the procedure for approval of plans before setting up a factory engaged in manufacturing processes, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power.	Yes	Contractor/Labour engagement	None	Chief Inspector of Factories
17	Bonded Labour System (Abolition) Act, 1976	The Act provides for the abolition of bonded labour system with a view to preventing the economic and physical exploitation of weaker sections of society. Bonded labour covers all forms of forced labour, including that arising out of a loan, debt or advance.	Yes	Contractor/Labour engagement	None	Chief labour Commissioner
18	Employer's Liability Act, 1938	This Act protects workmen who bring suits for damages against employers in case of injuries endured in the course of employment. Such injuries could be on account of negligence on the part of the employer or persons employed by them in maintenance of all machinery, equipment etc. in healthy and sound condition.	Yes	Contractor/Labour engagement	None	Chief labour Commissioner
19	Employees State Insurance Act 1948	The Act provides for certain benefits to insured employees and their families in case of sickness, maternity and disablement arising out of an employment injury. The Act applies to all employees in factories (as defined) or establishments which may be so notified by the appropriate Government. The Act provides for the	Yes	Contractor/Labour engagement	None	Chief labour Commissioner

S. No.	Legislation	Purpose	Applicability	Reason	Type of permit/specific action and stage of applicability	Administrative Authority
		setting up of an Employees' State Insurance Fund, which is to be administered by the Employees State Insurance Corporation. Contributions to the Fund are paid by the employer and the employee at rates as prescribed by the Central Government. The Act also provides for benefits to dependents of insured persons in case of death as a result of an employment injury.				
20	The Personal Injuries (Compensation Insurance) Act, 1963	This Act provides for the employer's liability and responsibility to pay compensation to employees where workmen sustain personal injuries in the course of employment.	Yes	Contractor/Labour engagement	None	Chief labour Commissioner
21	Industrial Employment (Standing Order) Act 1946	It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get the same certified by the designated Authority.	Yes	Contractor/Labour engagement	None	Chief labour Commissioner

2.2 APPLICABILITY ANALYSIS OF WB ENVIRONMENTAL AND SOCIAL FRAMEWORK STANDARDS

The World Bank Environmental and Social Framework comprises Policy, 10 standards and 2 Directives. The applicability of these standard vary depending on nature of activities. This applicability analysis is presented at **Table 2.2** below.

Table 2.2: Relevance and requirements ESF Policy, Standards and Directives

ESF Policy, Standards and Directives & Guidelines	Applicable Activities	Applicability / Requirements
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	All projects, sub-projects and associated facilities	Applicable (a) Conduct an environmental and social assessment of the proposed project, including stake- holder engagement; (b) Undertake stakeholder engagement and disclose appropriate information in accordance with ESS10; (c) Develop an ESCP, and implement all measures and actions set out in the legal agreement including the ESCP; and (d) Conduct monitoring and reporting on the environmental and social performance of the project against the ESSs
ESS2: Labour and Working Conditions	Engagement of labour for various civil, paint and electro-mechanical or any other activities as part of rehabilitation proposal. It applies to project workers including full- time, part-time, temporary, seasonal and migrant workers. It covers working conditions, protecting workforce, Grievance Mechanism and Occupational Health and Safety (OHS).	Applicable a) Preparation of Labour Management Procedures applicable to the project. b) Preparation of Grievance Mechanism and sharing with all the workers c) Design and Implement OHS measures
ESS3: Resource Efficiency, Pollution Prevention and Management	Resource consumption and pollution generation from proposed activities (civil, electromechanical and paint work). This includes both hazardous and non-hazardous chemical pollutants in the solid, liquid, or gaseous phases	Applicable a) To assess the resource requirement and implement technically and financially feasible measures for improving efficient consumption of energy, water and raw materials, as well as other resources. b) Preparation of Resource Efficiency and Pollution Prevention Plan to assess and minimize/control the concentration of release of pollutants to air, water and land due to routine, non-routine, and accidental circumstances, and with the potential for local, regional, and transboundary impacts.
ESS 4: Community Health and Safety	Applies to potential risks and impacts on communities that may be affected by project activities such as transportation of material to project site through village roads, labour colony	Applicable a) Pollution from project activities and labour colony and increased traffic causing pollution and road safety risks on village roads during transportation of material.

ESF Policy, Standards and Directives & Guidelines	Applicable Activities	Applicability / Requirements
	housing migrant workers near the project site, pollution generation from civil and electro-mechanical work.	b) Preparation of Emergency Response Procedure (ERP) to prevent injuries to health and safety of the community during an emergency event arising from both natural and man-made hazards, typically in the form of fire, explosions, leaks or spills, flooding, etc.
ESS 5: Land Acquisition, Restrictions on Land use and Involuntary Resettlement	Applies to permanent or temporary physical and economic displacement resulting from land acquisition or restrictions on land use undertaken or imposed in connection with project implementation.	Not Applicable Proposed interventions are limited to the existing dam and will take place on the existing dam structure and within its premises. Any of the proposed activities/interventions, does not involve acquisition of private land and/or private assets. These activities in no way cause restriction on access to land or use of resources by local communities and there is no economic displacement envisaged due to the sub-project.
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural resources	Applies to all projects that potentially affect biodiversity or habitats, either positively or negatively, directly or indirectly, or that depend upon biodiversity for their success.	Not Applicable The present interventions do not involve any tree cutting or impacting any forest area in any way. Activities remain limited to the dam premises only. Impacts on wildlife including that on fish fauna in the reservoir and river are negligible due the nature and location of activities proposed under this sub-project. There is no national park/wildlife sanctuary/Conservation Reserve within 10 Km of the project. No direct or indirect impacts on biodiversity are envisaged due to proposed interventions.
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Tradition Local Communities	Applies to traditional communities or schedule tribes, if they are present or have collective attachment to a proposed project area, as determined during the environmental and social assessment. This ESS applies regardless of whether such Communities are affected positively or negatively, and regardless of the significance of any such impacts.	Applicable The whole district is a Schedule V area, even though the project interventions do not directly or indirectly impact schedule tribe. Though there are scheduled tribe population in the downstream, they will be involved in non-structural interventions such as in the preparation of the Emergency Action Plans.
ESS 8: Cultural Heritage	Applies to all projects that are likely to have risks/impacts on cultural heritage	Not Applicable – Project is not directly or indirectly impacting any cultural heritage as no such sites are in proximity to the project site. Access to temples/religious places in surrounding villages will not be blocked/hampered dur to any of the proposed interventions as such activities are limited to dam premises only.
ESS 9: Financial Intermediaries	Applies to Financial Intermediaries (FIs) that receive financial support from the Bank. FIs include public	Not Applicable - Project does not have any FIs

ESF Policy, Standards and Directives & Guidelines	Applicable Activities	Applicability / Requirements
	and private financial services providers, including national and regional development banks, which channel financial resources to a range of economic activities across industry sectors.	
ESS 10: Stakeholder Engagement and Information Disclosure	Applies to all projects supported by the Bank through Investment Project Financing. The Borrower will engage with stakeholders as an integral part of the project's environmental and social assessment and project design and implementation	Applicable for the dam as a whole and in particular in relation to the non-structural interventions involving Early flood Warning system having siren systems, broadcasting facilities, etc. Preparation of Stakeholder Engagement Plan Establishment of a project level GRM
Environmental and Social Directive for Investment Project Financing	This Directive applies to the Bank and sets out the mandatory requirements for the implementation of the Environmental and Social Policy for Investment Project Financing (IPF).	Applies to Bank in addressing E&S aspects of this project
Bank Directive Addressing Risks and Impacts on Disadvantaged or Vulnerable Individuals or Groups	This Directive establishes directions for Bank staff regarding due diligence obligations relating to the identification of, and mitigation of risks and impacts on, individuals or groups who, because of their particular circumstances, may be disadvantaged or vulnerable	Applies to Bank in addressing E&S risks and impacts on disadvantaged and vulnerable persons or groups that are identified in this project
World Bank's Guidance note on managing the risks of adverse impacts on communities from temporary project induced labor influx, 2016	The document provides guidelines to address issues and risks arising from influx of migrant labour leading to gender-based violence, forced labour etc.	Not applicable as even though influx of skilled migrant labour in construction works is likely, these labor will operate within the dam premises which is a restricted access zone and distant from habitations. However, GBV related clauses would be included in the bid documents and sensitization/awareness trainings would be provided to all dam personnel, contractors, etc. during implementation

2.3 INSTITUTIONAL FRAMEWORK

The sub-project will be implemented by Water Resources Department (WRD, Rajasthan. The department has two distinct divisions – IGND (Indira Gandhi Nahar Division) and Water Resources Division. Water Resources Division who will be responsible for implementing the project and is headed by Principal Secretary. The mandate of WRD is:

- Construction of major, medium and minor irrigation projects,
- Operation and maintenance of existing tanks, canals and other irrigation structures are the prime function of the Irrigation Department.
- Flood control measures and floods related remedial measures are also assigned to the Irrigation Department.
- Construction of irrigation structures under various special schemes like PMKSY, MJSA, AIBP, JICA etc. are entrusted to the Irrigation department.
- Collection of revenue pertaining to sale of water from tanks irrigating more than 1000 ha. of land is done by the Irrigation Department. However, collection of irrigation charges in respect of tanks Engineering irrigating less than 1000 ha. is assigned to the Patwaris of the Revenue Department.
- Construction and maintenance of the rest houses of irrigation department, office buildings, residential buildings of the staff, gardens, parks, roads etc.

Specifically, in respect of capacity to address E&S issues, WRD Rajasthan do not have inhouse expertise. Chief Engineer at SPMU and Executive Engineer at dam level look after all the aspects.

Presently, no formal system is established for dealing with external complaints.

The baseline conditions are analysed based on secondary information and site observations and are presented in following order Physical, Biological, Protected area and Socio-economic profile.

3.1 PHYSICAL ENVIRONMENT

Land Use/ Land Cover

The project surrounding area's land use and environmental sensitivity was analysed using GIS techniques. Landuse/land cover map for 5 Km radius around dam site is presented at **Figure 3.1**. As can be seen from the map, present land use upstream of dam is largely waterbody (reservoir), remaining land is agriculture and some part is scrub land. On downstream side, right bank is mainly agriculture land and left bank is mix of agriculture and scrub land. However, as discussed under chapter 2 on project description the project activities will be confined to dam body only and no activities are proposed beyond existing dam boundaries. Villages in close proximity to dam body are Kamla Amba and Karkoli on left bank, Salawata and Karkala on right bank. The dam is also approachable from left flank by covering a distance of 7 km from Jatana village. The distance of Dam from Dungarpur district HQ is 57 km and 6 km from Dungarpur to Aspur State Highway 54 (RJ SH 54). Nearest village from dam is Kamla Amba.

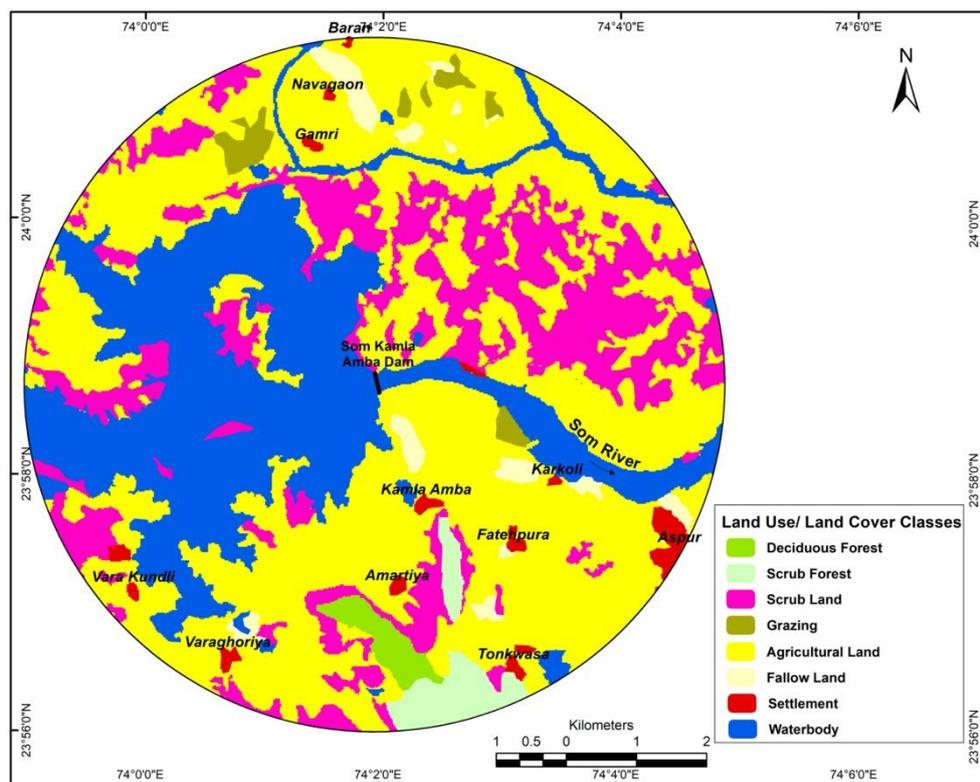


Figure 3.1: Land Use and Land Cover Map of 5 Km radius around Dam

Ambient Air Quality and Noise

Site-specific data of ambient air quality and sound levels at project site is not available. However, general observation is made during site visit that area is free from air and noise pollution. This is substantiated by the fact that the dam is away from habitation, traffic and industries and that there are no anthropogenic sources of air/noise pollution in the vicinity. Therefore, ambient air is clean and sound levels are observed low. They are expected to be well within the prescribed limits.

Water Quality

Water quality data of Som Kamla Amba reservoir was taken from “Ecology and Fisheries of selected Reservoirs of Southern Rajasthan”, a study by Sharma, V. K. and Kushal, D. K. of Central Inland Fisheries Research Institute (ICAR) Kolkata. Bull No. 138. Water in Som Kamla Amba reservoir remains clear imparting a greenish tinge. The water temperature varied from 17 in winter to 28°C in post-monsoon. The alkaline water (PH 7.4) is favorable for fish growth. Dissolved oxygen varied from 6.0 to 8.4 mg/l. Assessment of the productivity based on total alkalinity (122 mg/l) reflected the water body fairly productive. Calcium content of water ranged between 27 and 30 mg/l. Magnesium concentration was of high range (8.4-21.6 mg/l). Chloride values fluctuated from 10.0 to 18.0 mg/l. Higher values of specific conductance (601 μ Mho/cm) supported the eutrophic character of the reservoir. **Table 3.1** give water quality data.

Table 3.1: Water Quality of Som Kamla Amba Reservoir

Depth (in m)		Surface	2	4	6	8
Water Temperature (deg C)	Summer	25.5	-	-	-	-
	Post Monsoon	28	27.5	27	26.3	26
	Winter	17	16.5	16.4	16	-
pH	Summer	8.12	-	-	-	-
	Post Monsoon	7.69	830	735	7.94	7.95
	Winter	6.49	6.52	6.59	6.61	-
DO (ppm)	Summer	8	-	-	-	-
	Post Monsoon	8.4	8	6	5.6	5.2
	Winter	6	5.6	5.6	5.2	-
Total alkalinity (ppm)	Summer	205.8	-	-	-	-
	Post Monsoon	86	90	90	92	96
	Winter	95	1032	117.6	133.8	-
Conductivity (micro-mhos/cm)	Summer	881	-	-	-	-
	Post Monsoon	429	414	412	411	402
	Winter	494	495	502	505	-

Natural Hazards

Potential of natural hazards such as flooding and earthquake is not significant. Project is designed for a design flood value of 20500 cumec, revised design flood has been worked as 21767 cumec by CWC i.e. a nominal 6.18% increase. Project falls in earthquake zone II, there is no revision and dam design has taken care of this aspect as well. Bureau of Indian Standards [IS 1893 (Part I):2002], has grouped the country into four seismic zones, viz. Zone II, III, IV and V. Zone II is the least active and Zone V is the most active.

3.2 BIOLOGICAL ENVIRONMENT

Flora and Fauna

The natural vegetation of North Dry Deciduous and Northern Tropical Thorn Forest (Champion and Seth 1968) occurs in the area. Forest in the area is categorised as Teak (*Tectona grandis*) Forest, Salar (*Boswellia serrate*) Forest and Miscellaneous Forest. Common tree species reported from these forest are *Anogeissus pendula*, *Azadirachta indica*, *Anogeissus latifolia*, *Terminalis tomentosa*, *Terminalis arjuna*, *Terminalia chembula*, *Albizia lebbek*, *Butea monosperma*, *Capparis sepiaria*, *Cassia auriculata*, *Lannea coromandelica*, *Moringa concanensis*, *Prosopis cineraria*, *Cassia fistula*, etc. Shrubs in the area were mainly represented by *Leptadenia pyrotechnica*, *Calligonum polygonoides*, *Calotropis procera*, *Acacia jacquemontii*, *Ziziphus nummularia*, etc. Bamboo is commonly found in the depressions and on moderate slopes.

The hillock forests, scrub forest, streams provide habitat for wildlife in the area. Rhesus Monkey, Wild boar, Blue Bull, Indian Fox, and Indian Palm Squirrel were sighted frequently species in the study area. Indian leopard, Tiger, striped hyena, golden jackal, Bengal fox, jungle cat, porcupine and sloth bear are also reported from the area.

The availability of water, safe habitat and food sources for both common and migratory birds around the water bodies of district's are important for the occurrence and abundance of aquatic bird populations. Around 85 species of aquatic birds belonging to 13 families were recorded in the study area which has its own importance. The resident aquatic species of the globally importance include Saras Crane, Storks (Painted and Blacknecked), Darter, Black-Headed Ibis are found here at many wetland sites. Whereas migratory aquatic birds of global importance include Dalmatian Pelican, Lesser Flamingo, Ferruginous Pochard, Black-tailed Godwit, Eurasian Curlew, Black tailed Tern etc. are identified here in winter season spatially (Patidar 2014).

Proposed activities remain limited to dam premises and therefore no risk is envisaged on flora and fauna in the surrounding areas.

Fish & Fisheries

Fishing in the reservoir is being done by fishermen engaged by the contractor to whom the fishing rights are leased out for a period of three years through an open auction. The common species thriving in the reservoir are *Catla catla*, *Labeo rohita*, *Cirrhinus mrigala*, *Aorichthys seenghala*, *Labeo gonius*, *Labeo calbasu*, *Labeo bata*, *Puntius sarana* and *Wallago attu*. (Sharma & Kaushal, 2004).

None of the proposed activities under the sub-project will impact water quality of river/reservoir and therefore, there is no risk/impact on fish fauna.

3.3 PROTECTED AREA

Nearest Protected Area

Jaisamand Wildlife Sanctuary is the nearest at about 24.7 km from the dam. Other protected areas are Sitamata WLS at 44.6 Km and Phulwari Ki Nal WLS at 70.80 Km. The location of protected areas in relation to dam is shown below at **Figure 3.2**.

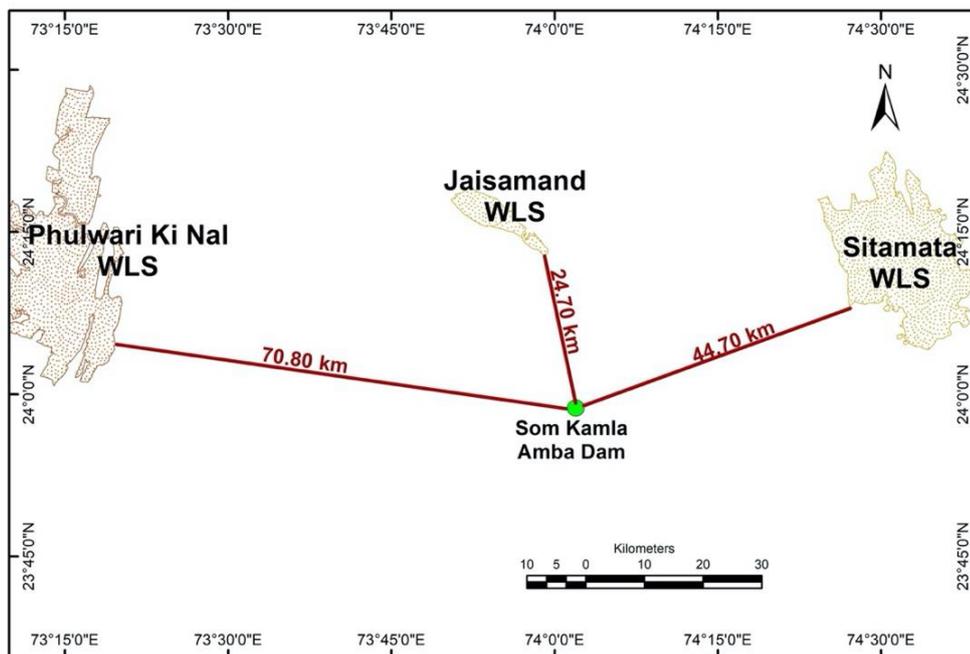


Figure 3.2: Map showing location of Protected Areas wrt Som Kamla Amba Dam

3.4 SOCIAL ENVIRONMENT

The district Dungarpur is one of the six districts, those comes under Udaipur division. The district has four sub-divisions and four tehsil headquarters. The brief demographic characteristic of the district is given in the table below:

No. of Households	2,82,029	Household Size	5
Total Population	13,88,552	Population (0-6 age)	2,42,239
Male	6,96,532	Boys (0-6 age)	1,26,008
Female	6,92,020	Girls (0-6 age)	1,16,231
Sex Ratio	994	Sex Ratio (0-6)	922
Population (SC)	52,267	Population (ST)	9,83,437
Male	26,543	Male	4,91,631
Female	25,724	Female	4,91,806
Literates	6,81,591	Literacy Rate	59.5
Male	4,15,820	Male	72.9
Female	2,65,771	Female	46.2
No. of Workers	6,41,515	Cultivators	2,27,849 (35.5%)
Male	3,46,624	Agricultural Labours	1,84,330 (28.7%)
Female	2,94,891	Household Industrial Workers	12,514 (2.0%)
No. of Main Workers	2,16,411	Other Workers	2,16,822 (33.8%)
No. of Marginal Workers	4,25,104		

Source: Census of India, 2011 (District Handbook)

The project district i.e. Dungarpur is fully tribal district as declared under the Schedule V¹ areas. There is significant tribal population at 70.8%. There are Schedule Tribe households in the downstream areas, however, there will be no physical interventions outside the dam boundary. However, these areas and households will be covered during the preparation of overall Emergency Action Plan for Som Kamla Amba Dam.

Study area is defined as proximity villages i.e. villages which fall within 5 km distance from dam on downstream side. According to Census 2011, total population of the study area has been worked out to 16,797. The gender wise distribution of the above population is 8,536 (50.82%) male and 8,261 (49.18%) female. The overall sex ratio of the study area has been worked out to 968 females per 1,000 males. Total population of the study area is distributed into different social groups like Scheduled Caste (SC), Scheduled Tribe (ST) and General Category (including OBC). The share of these social groups' population to the total population of the study area is 7.10%, 42.48% and 50.42% respectively.

In the study area, 57.12% of the population is literate in which male literates are 61.91% and that of females are 38.09%. The overall literacy rate in the study area has been worked out to 67.20%. The male literacy rate is 82.01% and female literacy rate is 51.56%, creating a gender gap in literacy rate of 30.05%.

The economic classification of workers as per Census 2011 is saying that total number of workers in the study area is 7,798 which constitute 46.42% of the total population. Of the total workers, 59.07% are males and remaining 40.93% are females. In absolute term, total number of male workers is 4,606 and that of female is 3,192. The gender gap in work participation rate is only 18.14%. Agriculture and allied activities are the main occupation & sources of livelihood and income for most of the local people in the study area. Rabi and Kharif, both are the main crops. Wheat, gram, bajra, barley, jowar, guar, moong, moth, methi, isabgol are the main crops from production point of view in the study area. Vegetable and fruits are also being produced in the study area. Canals and Tube wells are main sources of irrigation followed by wells. Apart from this, other people are engaged in household industries and ancillary works.

Basic amenities like water supply for drinking and other uses is available with various sources such as Tap (Treated & Un-treated), Well (Covered & Un-covered), Hand Pump, Tube wells, River/Canal and Tank etc. Electricity is available for domestic, agriculture and commercial or industrial uses in almost all over the study area. The study area having approach roads as Black Topped (Paved), Gravel and Footpath. Data on population, occupation and amenities of vicinity villages haven been compiled from Census of India and is given at **Annexure I**.

3.5 CULTURAL ENVIRONMENT

List of National Monuments in Rajasthan and list of State Protected monuments in Rajasthan have been reviewed. There are no protected monuments in the entire district.

¹**Scheduled Areas** are **areas** in India with a preponderance of tribal population subject to a special governance mechanism wherein the central government plays a direct role in safeguarding cultural and economic interests of **scheduled** tribes in the **area**.

4.1 STAKEHOLDERS CONSULTATION

Stakeholder consultations was conducted as part of environmental and social impact assessments. The purpose was to:

- a. provide initial information to the communities on the proposed project interventions and particularly the non-structural interventions;
- b. help identify potential stakeholders who are involved at this stage and will be involved a later stage.
- c. ascertain if there are any legacy issues relating to displacement, resettlement, etc.
- d. elicit their responses in relation to key non-structural interventions such as early warning systems, emergency action plans
- e. identify mechanisms that would be deployed to engage with different stakeholders and particularly communities living downstream

A stakeholder consultation meeting was conducted at dam on 19/01/2020. The meeting was attended by permanent staff of the borrower (WRD) working at dam, contract workers from nearby villages; and locals.



Following is the outcome of the stakeholder consultation meeting:

1. The participants expressed concern about the infrastructure of the dam and sought speedy implementation, before the onset of monsoon.
2. During the last season the district administration and dam authorities coordinated cautiously to avoid damage. Early warning and alarm set up are noted as important measures.
3. The counterpart highlighted the scarcity of staff but are fully aware of the interventions proposed in the PST and the execution plan. It is however requested that

awareness/operational training on ESF and related compliances prior to procurement process is imparted.

4. The participants informed that the prosperity around the dam and downstream is because of the dam and proposed works are required to be taken up soon.
5. It is learnt that around 150-200 boats operate in the dam for fishing on a multi-year contract through contractor. The contract is engaged with fisheries department and no revenue is shared with WRD. The participants opined that a portion of revenue is shared for dam maintenance. The proposed interventions in no way interfere with the fishing activity and the same is clarified during the discussions.
6. The participants also suggested to increase security staff during the tourist season of monsoon to address potential safety issues of the tourists and dam site.
7. Approach road works to the dam from the main entrance as well as saddle dam as well as strengthening the rip rap of the saddle dam are highlighted during the discussions. The right of way required for works is the property of WRD and is in the possession of WRD.

Based on these findings relating to both structural and non-structural interventions, potential stakeholders were categorized as follows: Affected, Other interested stakeholders, and disadvantaged and vulnerable stakeholders

Affected parties: There are no affected persons who shall be directly or indirectly adversely affected by the proposed interventions

Other interested stakeholders: In relation to structural interventions, these would be potential contractors, Project Management consultants, either regulatory bodies/institutional stakeholders such as Revenue, Environmental Authorities, etc. In relation to non-structural interventions, these would include: communities living downstream including farmers; village heads (Sarpanchs), community leaders; district administration; police, state disaster management authority, revenue department; electronic and print media, etc. These communities would be key stakeholders requiring to be involved in the preparation and implementation of EAP.

Disadvantaged and vulnerable persons and groups: Illiterate persons, physically challenged, women and elderly would be key stakeholders – requiring special focus and outreach to ensure that they are well informed about the provisions of the EAP.

Communities welcomed such interactions and indicated that they would prefer Dam authorities conduct one such face -to- face meeting once a month at a convenient location to inform of developments/interventions relevant to them. They welcomed other means of information such as advertisements in the local papers etc, but preferred to have face to face interactions at least once a month.

Based on the relevance of each Standard, as identified in the chapter on Legal, Regulatory and Institutional Framework, ensuing sections summarize the environmental and social risks and impacts likely due to the proposed interventions followed by the mitigation measures considered, for each relevant Standard. Table below, presents the Risk and impacts grouped in respect of the applicable ESS identified in chapter 3 earlier:

Applicable ESS	Risk and Impacts area assessed
ESS1- Assessment and Management of Environmental and Social Risks and Impacts	The risks and Impacts is carried out as per requirement of this standard
ESS2- Labour and Working Conditions	Types of Workers/labour and working conditions
ESS3- Resource Efficiency, Pollution Prevention and Management	Impact on Physiography/land use/Geology/Soil Impacts on water resources/Water Quality Impact on Air quality/Noise levels Impact due waste generation/disposal
ESS4- Community Health and Safety	Impacts on Community Health and safety
ESS7 - Indigenous Peoples/Sub-Saharan African Historically Underserved Tradition Local Communities	Impacts and risks on such indigenous/tribal groups in this Schedule V area.

5.1 ASSESSMENT AND MANAGEMENT OF E&S RISK AND IMPACT (ESS 1)

Proposed intervention are categorised as civil, electromechanical and painting work requiring labour involvement for works and their stay at site for a period of about 3 years, use of resources such as water and power during construction, pollution generation from storage and handling of material, generation of waste, use of paints and other chemicals for construction activities, transportation of raw material, etc. In addition, labour intensive work always involves risks of accidents such as working at heights, working on upstream body of dam, underground activities, etc.

As all the proposed structural interventions are within the dam premises, no adverse impacts are envisaged on communities including that on the disadvantaged or vulnerable people. On the contrary, all communities including disadvantaged and vulnerable persons and groups will indirectly benefit from these proposed interventions that shall enhance dam safety.

However, in case of non-structural interventions relating to early flood warning systems having siren systems, broadcasting facilities and Emergency Action Plans, project will need to make extra efforts to reach out to the disadvantaged and vulnerable persons and groups to involve them in both preparation and implementation.

5.2 LABOUR AND WORKING CONDITIONS (ESS 2)

Water Resources Department, Rajasthan shall contract agencies to undertake civil works, agencies/firms to support core-functions; primary suppliers of material/equipment and other implementation support partners, and these could be from anywhere in the country. Construction works will require labour force and associated goods and services. Based on the construction package sizes and the project implementation schedule, the peak construction workforce/manpower has been estimated as 40-50. These will be skilled and semi-skilled workforce of contractors and expected to stay on site for a period of 3 years. In addition, there will be floating population of suppliers, transporters of material and their labour who will keep on moving in and out of the site during the work period of 3 years. Construction contractors are expected to stay at/near dam, set up construction equipment and machinery near work location at pre-determined /approved sites.

Project shall comprise the following types of workers:

1. **Direct workers:** Direct workers will include the project managers and supervisors, who are employees of WRD. The estimated number of direct workers is not likely to exceed 30 as per existing institutional arrangements and practices of WRD.
2. **Contracted workers:** All the work force deployed by the Contractors will be deemed to be contracted workers. The Contractor(s) might further engage multiple subcontractors. All work force of all such sub-contractors will be also deemed to be contracted workers. These will also include Migrant workers as all the required labour will not be fully supplied locally for a number of reasons, such as worker unavailability and lack of technical skills and capacity.

Migrant Workers: The migrant workers are that, who are employed for the Project but does not belong to the Project region and are not normally expected to return to their places of residence after work shift hours. The number of migrant workers in any contract package, would depend on decisions made by contractors, based on the locally available workforce and their skills for Project construction requirements. The migrant workers could be at all levels and include unskilled and semiskilled construction labour and could even comprise combination of male and women labour force. The migrant workers are either directly engaged by the contractor or through labour contractors, who supply the work force as per the needs of the contractors.

3. **Primary Supply Workers:** No primary supplier or primary supply workers are anticipated as all goods and services essential to the core functions of the project shall be provided by the contractor – through a contract by Rajasthan WRD.
4. **Community Workers:** Community workers are envisaged under the Emergency Action Plans, who will be mostly volunteers for implementing parts of the EAP.

Potential Labour risks: Following are the potential risks associated with workers/labours engaged in execution of planned intervention works.

Impact/Risks on Community

1. Waste generation from labour colony can pollute drinking water sources of community

Impacts/Risks for Workforce

2. Safety issues while at work like injuries/accidents/ fatalities leading to even death, while at work;
3. Short terms effects due to exposure to dust and noise levels, while at work
4. Long term effects on life due to exposure to chemical /hazardous wastes
5. Inadequate accommodation facilities at work force camps, including inadequate sanitation and health facilities
6. Non-payment of wages
7. Discrimination in Employment (e.g. abrupt termination of the employment, working conditions, wages or benefits etc.)
8. Sexual harassment at work
9. Absence or inadequate or inaccessible emergency response system for rescue of labour/workforce in situations of natural calamities.
10. Health risks of labour relating to HIV/AIDS and other sexually transmitted diseases

In addition, other risks that would be applicable for all types of workers would be as follows:

1. Unclear terms and conditions of employment
2. Discrimination and denial of equal opportunity in hiring and promotions/incentives/training opportunities
3. Denial for workers' rights to form worker's organizations, etc.
4. Absence of a grievance mechanism for labour to seek redressal of their grievances/issues

5.3 RESOURCE EFFICIENCY AND POLLUTION PREVENTION AND MANAGEMENT (ESS 3)

Impact on Physiography

The dam is operational for over 15 years now and the present interventions involve only civil and electromechanical works to improve dam operation and safety. All the work will be carried out at one location i.e. at dam, therefore, physiography will not change due to any of the proposed interventions. There will be no significant impact on physiography of the region due to the proposed interventions.

Impact on Land/Geology

All project components are proposed to happen within existing dam with no land acquisition. Therefore, impact on land and geology will be limited to sourcing of construction material or disposal of construction waste related only. The civil works will require different construction materials such as earth, aggregate, boulders, and sand. The requirement of such material is not large and will be sourced from already operational and approved mines/quarries. The construction waste generation is also likely to be minimal and will be

either reused or disposal for land filling or levelling purposes. However, requisite mitigation measures will be taken to minimise impact further.

The various 'resource efficacy' options during design include optimize usage of material generated from excavation for wall foundation and generation of construction waste from repair activities and thereby reduce potential impact due to dumping etc., are considered to achieve minimum construction footprint.

Impact on Soil

The land where construction activities will take place will be directly impacted due to excavation, removal of topsoil, temporary storage of excavated material, etc. Other repair sites will also impact soil due to repair and demolition works such as removal and fresh laying of rip-raps, repair to steps, spillage during painting, operation of construction equipment and machinery and waste generation thereof, etc. There is also possibility of contamination of soil from leakage and spillage during handling and storage of fuels and chemicals.

Muck Disposal

The activities that generate construction debris and/or spoil are excavation, removal of damaged rip-raps, other repair and renovation activities as discussed above. This being largely repair work, quantities have not been estimated and they are not expected to be significant to create disposal problem. Nevertheless, all the construction debris/muck generated needs to be disposed off in a planned manner to avoid adverse impacts on soil.

Impacts on Water Resources

The proposed intervention activities are not expected to impact water resources in any way as the proposed interventions are neither crossing, altering or disturbing drainages nor impacting ground water resource in any form. Use of resources such as water and power will be optimised before start of work through Resource Efficiency and Pollution Prevention Plan.

Impacts on Water Quality

Construction related impacts and risks for water quality include:

- a) accidental release of fuel or chemicals and contamination from poor waste practices can affect surface and groundwater
- b) contamination from construction machinery working near water bodies
- c) discharges and disturbance of soil and sediment that drain into surface waters
- d) construction of d/s protection wall
- e) Generation of sanitary wastes from camp site and construction sites finding way to water bodies

Impact on Ambient Air Quality

As discussed in baseline, ambient air quality in the area is pristine and without any significant anthropogenic sources of pollution. Construction activities can give rise to dust emissions if not effectively managed and have the potential to affect receptors near to the main construction sites due to dust generated from demolition, excavation, operation of construction equipment and machinery, increased movement of vehicles, onto the local

road network. Earth works will result in exposed areas of soil which will potentially generate dust when it is windy, with dust potentially being generated when winds blow at all times of day or night, not just during active periods of construction. The level and distribution of dust emissions will vary according to the duration and location of activity, weather conditions, and the effectiveness of suppression measures.

Gaseous emission during construction will be from machinery, equipment and vehicles used for material transportation. The operation of vehicles and equipment will result in emissions of carbon monoxide, sulphur dioxide, and oxides of nitrogen. In particular, all commercial vehicle driven with diesel fuel is often used in India. The greatest impact on air quality due to emissions from vehicles and plant will be in the areas immediately adjacent to work area. Generally, additional vehicle movements generated during the construction phase will have the potential to influence local air quality at sensitive receptors located at close proximity to road and pollutant concentration is likely to reduce with increase distance from road. The impacts will therefore apply mostly to the villages on route to dam.

As the project is presently operational and the interventions are not going to alter the project operation in any manner, no operational phase impacts are envisaged on ambient air quality.

Impact of Noise and Vibration

Sources of noise will be the vehicles and equipment for construction at the project site. Due to construction activity in the area, noise levels will increase during the period of construction, however, they will remain limited to the work area mainly where construction activity will progress. Additionally, noise levels will increase on approach roads due to increased traffic.

Impact of noise generation due to operation of construction machines and equipment is the exposure of workers operating these machines and other who are working in the surrounding. Such impacts can become significant if they are exposed to high noise for long hours continuously.

Impact of Waste Generation

Migratory population is expected to reside in the area during peak construction period. Proper sanitary and solid waste management facilities would be provided at the labour colonies. In the absence of proper solid waste management plan, there can be serious impacts of land and water pollution due to indiscriminate disposal. In addition, there will be odour issues and health impacts. There will be an influx of labourers and other service providers into the project area. Sewage and solid waste will be generated from the colonies. It is essential that from the planning stage, sewage management and solid waste disposal facilities should be conceptualized to maintain the health of the people and the environment. Solid waste generated from the colonies during construction phase will be disposed off as per Solid Wastes Management Rules, 2016.

As most of the proposed activities involve repair and renovation, it is expected that construction and demolition waste in the form of debris will be generated. This being largely

repair work, quantities have not been estimated and they are not expected to be significant to create disposal problem. Nevertheless, all the construction debris/muck generated needs to be disposed off in a planned manner to avoid adverse impacts on soil/land. All such wastes will be handled in compliance with Construction and Demolition Waste Rules, 2016.

Project interventions include substantial amount of electro-mechanical work such as repair/replacement of hoists and gates, repair of gantry crane, installing lights in gallery and over dam body, renovation of centralised control room, etc. These activities will generate significant amount of waste in terms of replaced parts, packaging material, empty containers, use and disposal of oil & grease, iron scrap, etc. There will be a mix of hazardous and non-hazardous wastes. It is important to have a plan ready for disposal of such wastes before start of the activity.

Contractor is obliged to provide first-aid/basic medical facilities to labour at site especially during accident/emergency which is likely to generate bio-medical waste, although quantity is not expected to be significant, this needs to be managed to avoid indiscriminate dumping as impacts could be serious.

WRD along with contractor will prepare project specific muck / debris/Solid Waste disposal plan and provide sufficient site for such disposals.

5.4 COMMUNITY HEALTH AND SAFETY (ESS 4)

Health safety and security risks and impacts on project affected communities especially on vulnerable people are not considered significant as communities are not directly involved or getting impacted. However, the project construction would involve engagement of labour, transportation and handling of material, civil construction and electromechanical works and such activities may impact the community and increase the risks.

Engagement of labour for project work and their stay at site for about 3 years' time, will increase the risks of crimes including gender based violence. Waste generation from labour colony if not handled properly, will pollute the water resources used by community for drinking leading to health impacts. Migratory workforce may be bringing in new and infectious diseases not known to area.

Transportation of material will increase the traffic on village roads. Increased movement of traffic will impact the community by way of increased noise and air pollution. In addition, this will also increase the risk of accidents.

Similarly, civil construction and electromechanical works will lead to pollution generation in the form of air emissions and noise generation, which will remain local and are not expected to impact the community. Construction waste and electromechanical work waste, especially the hazardous waste if not disposed off, properly have the potential of impacting the surrounding community.

5.5 INDIGENOUS PEOPLES/SUB-SAHARAN AFRICAN HISTORICALLY UNDERSERVED TRADITIONAL LOCAL COMMUNITIES (ESS 7)

The standard will apply as the project dam is located in a Schedule V area with preponderance of tribal population. Proposed structural interventions resulting in improved dam safety will not lead to any direct or indirect adverse impacts on the population. On the contrary, these will benefit all the beneficiary population including the scheduled tribes in the area. Non-structural interventions such as Early warning system and Emergency Action Plans too will benefit these groups. These tribal groups will comprise Disadvantaged and Vulnerable groups under the Stakeholder Engagement efforts. More efforts will be made to reach out to these groups during EAP preparation and implementation, particularly using culturally appropriate communication and IEC material.

As can be seen from the above discussion, the interventions proposed under Som kamlā Amba sub-project are of the nature of civil and electromechanical work, besides Non-structural interventions such as early flood warning systems, Emergency action plans. In case of structural interventions, there is no additional land requirement – neither forest nor private, as all the interventions remain within the close proximity to dam body itself. Impacts/risks as assessed under ESIA study will remain limited to dam area except for procurement and transportation of material and labour habitation in the area, which have the potential of impacting community around the dam site.

6.1 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

E&S impacts/risks for this sub-project Dam is Low risk, as identified in the previous chapter. These risks and impacts can be mitigated by appropriately implementing management measures. Based on the ESIA following plans/procedures have been identified to effectively mitigate the environment and social impacts and risks of the proposed interventions:

- ***Labour Management Procedure including GRM***

The Procedure will set out the way in which project workers will be managed, in accordance with the requirements of national law and the bank's ESS Standards and will address the way in which this ESS will apply to different categories of project workers. It covers the terms and conditions of employment, non-discrimination and equal opportunity, worker's organization and welfare. Protecting the workforce, establishing minimum age for labour to prevent child labour will be defined in the procedure. The responsibility to manage any adverse impacts would be clearly reflected in the contractual obligations of the Contractor with appropriate mechanisms for addressing non-compliance.

A grievance mechanism will be provided for all direct workers and contracted to raise workplace concerns and workers will be informed of the grievance mechanism at the time of recruitment along with the measures put in place to protect them against any reprisal for its use. Mechanism should be easily accessible to all project workers. It should be designed to address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned in a language they understand, without any retribution, and will operate in an independent and objective manner.

The document shall be prepared by Rajasthan WRD with support from the E&S staff and shall be applicable for all dams taken under DRIP 2 in the state. It will be disclosed by Rajasthan WRD one month before mobilization of the Contractor.

- ***OHS Measures***

Measures relating to occupational health and safety applies to the project as it involves engagement of workers. The OHS measures will take into account the General Environment

Health and Safety Guidelines and applicable legal requirements. The OHS measures will be designed and implemented to address:

- i. identification of potential hazards to project workers, particularly those that may be life threatening;
- ii. provision of preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances;
- iii. training on occupational safety and health, and maintenance of training records
- iv. Provision of personal protective equipment without expense to the project workers.
- v. documentation and reporting of occupational accidents, diseases and incidents;
- vi. emergency prevention and preparedness and response arrangements to emergency situations;
- vii. remedies for adverse impacts such as occupational injuries, deaths, disability and disease
- viii. accident reporting and analysis procedure
- ix. system for regular review of OHS performance

The document shall be prepared by Rajasthan WRD with support from E&S Staff and shall be applicable for all dams taken under DRIP 2 in the state. It shall be disclosed by Rajasthan WRD one month before mobilization of the Contractor.

- ***GBV Risk Mitigation Guidelines***

The proposed structural interventions are extremely localized in nature and will be carried out in areas of restricted access – as normally all dams are. These structural interventions will not result in any project interface with local communities, the overall GBV rating for this dam intervention as per the Risk Assessment Tool is low. Hence, in accordance with the overall GBV Risk Mitigation Framework for the project, guidelines will be developed commensurate to the low risk category to address Gender Based Violence Risk before invitation of bids. The Plan will provide a set of measures such as orientation to all categories of labour including department staff/dam site personnel. The document shall be prepared by Rajasthan WRD with support from the E&S Staff of Rajasthan WRD.

- ***Resource Efficiency and Pollution Prevention Measures***

Keeping in view the risks and impacts of the proposed activities, WRD will prepare a set of measures to be implemented by the Contractors to ensure efficient use of resources and avoid/minimize the pollution from proposed interventions. The measures should address all possible impacts identified above, with respect to resource use and pollution generation from civil works including road repair, electromechanical and painting work and also from labour camps and colonies. It should focus on reuse/recycling; energy efficiency such as solar lights and cookers for colony/community kitchen for workers, where possible.

The project's demand for major raw material such as boulders, aggregate and sand for construction will be sourced through pre-existing authorized quarries, with valid environment clearance. To mitigate air and noise pollution from transportation, material storage and handling and construction activities, following measures should be included:

- To ensure trucks are loaded only up to permitted capacities to prevent high emission

- The ensure trucks used for transportation of material is covered by tarpaulin and provided tail board, so that en-route spillage and generation of fugitive dust are prevented.
- Vehicles in good condition with valid PUC (Pollution Under Control) certificate shall be deployed during construction
- Regular sprinkling of the water will be done on construction sites for dust suppression.
- Mobile DG sets shall be used for lighting only during construction phase and they should meet emission and noise standards as per guidelines/standards issued by CPCB.
- All the construction workers and other staff, who get directly exposed to dust, should necessarily be provided with dust masks. Workers in high noise area, will be provided with ear muffs and their use will be monitored. Workers exposure (time duration) to high noise will also be controlled.
- Minimize the use of noise producing equipment during night hours to avoid the disturbance to locals and wild animals of surrounding area.

To mitigate the risk of wastewater from construction site and colony finding its way to fresh water source without treatment, the following measures should be included:

- All toilets and wash areas in worker's colony have functional septic tanks and soak pit arrangements, of adequate capacity.
- No discharge from oil/lube storage areas shall be directly discharged in to any open surface water channel/ streams.
- Construction along the river bank/reservoir shall be done when surface water level is receded and clear construction area is available.
- Storage of material and construction equipment should be kept away from the drainages to avoid any spillage and pollution of surface water.

For solid and hazardous waste management, sites should be identified for disposal of construction waste, surplus excavated material, and other solid wastes; and appropriate permissions taken for dumping with restoration plan covering engineering and biological measures as appropriate. No dump site shall be located in forest area. WRD will share identified locations of muck or debris disposal sites with the contractor. The contractor will develop a muck and debris disposal plan after incorporating longitudinal and cross section references to assess volume or capacity of the disposal site and will submit muck/ debris disposal plan before commencement of the work at site. This action needs to be included in the Bid Document as one of the key requirements.

WRD needs to prepare a plan to identify and quantify all the waste generated from electro-mechanical work include replaced parts with estimated quantities and categorisation as hazardous and non-hazardous waste. The plan should also identify the temporary secured and covered storage location till the time it is removed, contractors/vendors who will pick these parts/wastes; authorisation status of contractors for hazardous wastes.

Measures should also cover cleanliness of the labour colony, provision of basic solid waste collection facilities and restrict dumping of solid waste on land or in water body. Contractor should provide bins for dumping of domestic waste from colony and ensure timely pick up and dumping at authorised location.

The document shall be prepared by Rajasthan WRD with support from the E&S staff and shall be applicable for all dams taken under DRIP 2 in the state. It shall be disclosed by Rajasthan WRD one month before mobilization of the Contractor.

- ***Emergency Response Plan***

The plan will identify and implement measures to address emergency events, arising from both natural and man-made hazards, typically in the form of fire, explosions, leaks or spills or flooding of downstream area in case of dam break. The measures will be designed to address the emergency event in a coordinated and expeditious manner, to prevent it from injuring the health and safety of the community, and to minimize, mitigate and compensate for any impacts that may occur. ERP will cover emergency preparedness and response activities, resources, and responsibilities, and will disclose appropriate information to affected communities, relevant government agencies, or other relevant parties. The Borrower will assist and collaborate with affected communities, relevant government agencies and other relevant parties in their preparations to respond effectively to an emergency. The plan so prepared should be dovetailed with district disaster management plan and state disaster management plan.

The plan shall be prepared by Rajasthan WRD by engaging expert consultants; it should be ready before the invitation of bids.

- ***Procedures for Stakeholder Engagement***

The Stakeholder Engagement Framework (SEF) will describe the timing, methods of engagement with stakeholders and range of information, distinguishing between project-affected parties and other interested parties, as well as the type of information to be sought from them. The procedures developed based on SEF will set out how stakeholders will be engaged throughout project preparation and implementation and describe the measures that will be used to remove obstacles to participation, and how the views of differently affected groups will be captured. Where applicable, the procedures will include differentiated measures to allow the effective participation of those identified as disadvantaged or vulnerable. The draft Framework will be prepared by CWC in discussion with Rajasthan WRD and will be disclosed. The Stakeholder Engagement Procedures will be developed specific to the proposed interventions at the site, prior to invitation of bids.

- ***Institutional Arrangement***

As part of institutional strengthening for implementation of sub-projects, Environmental and Social staff will be engaged by the department to enable preparation of management plans as well subsequent implementation of mitigation measures during implementation. IA will hire experts from outside department or seek deputation of staff with relevant experience.

- ***Grievance Mechanism***

WRD shall establish and implement a grievance mechanism to receive and facilitate resolution of concerns and grievances, from the communities and other stakeholders including implementation partners. It shall be proportionate to the potential risks and

impacts of the project and be accessible and inclusive. The department will establish three levels of Grievance Mechanism:

1. A cell at each of the dam site headed by respective Executive Engineer
2. A cell at the SPMU headed by CE/PD
3. A committee at the state government level headed by Secretary to Government

Details on the processes and procedures for the GRM will be provided in the Stakeholder Engagement Framework.

6.2 MONITORING REPORTING AND BUDGETING

SPMU will prepare a monitoring, reporting and budgeting requirement to implement above plans and measures, which will be approved by CPMU - CWC. SPMU will prepare a quarterly monitoring report and submit to CPMU - CWC.

6.3 ENVIRONMENTAL AND SOCIAL COMMITMENT PLAN (ESCP) AND OTHER REQUIREMENTS

WRD, Rajasthan will agree on an Environmental and Social Commitment Plan (ESCP) with the Bank covering the material measures and actions that are required for the project to achieve compliance with the ESSs over a specified timeframe. It will take into account the findings of the environmental and social assessment, the Bank's environmental and social due diligence and the results of engagement with stakeholders. ESCP will clearly spell out the plans to be prepared with time frame and responsibility.

Annexure I
Socio-economic Profile of Proximity villages (Study Area)

Study area is defined as proximity villages i.e. villages which fall within 5 km distance from dam on downstream side. These are Naya Gaon, Baran, Gamri, Aspuri, Tonkwasa, Karkoli, Vara Kundli, Varaghoriya, Amartiya, Fatehpura and Kamla Amba.

A. Demography of Study Area

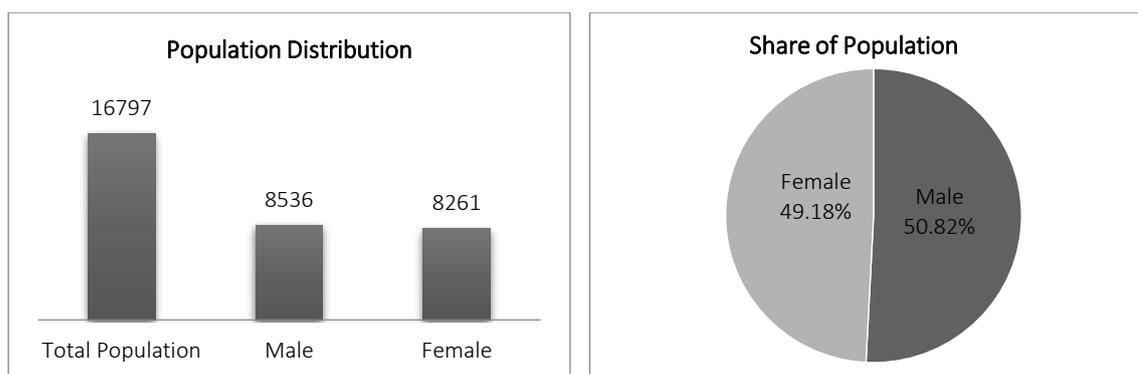
S. No.	Description	Number	Percentage to Respective Total
1	Total Population	16797	100.0
	Male	8536	50.82
	Female	8261	49.18
	Sex Ratio	968	
2	Population (0-6 age group)	2521	100.0
	Male	1293	51.29
	Female	1228	48.71
	Child Sex Ratio	950	
3	Scheduled Caste (SC) Population	1192	100.0
	Male	607	50.92
	Female	585	49.08
	Sex Ratio	964	
4	Scheduled Tribe (ST) Population	7136	100.0
	Male	3573	50.07
	Female	3563	49.93
	Sex Ratio	997	
5	General Category (Including OBC)	8469	100.0
	Male	4356	51.43
	Female	4113	48.57
	Sex Ratio	944	
6	Total No. of Households	3405	
	Average Household Size	5	
7	Total Literates	9594	100.0
	Male	5940	61.91
	Female	3654	38.09
	Overall Literacy Rate	67.20	
	Male Literacy Rate	82.01	
	Female Literacy Rate	51.96	
	Gender Gap in Literacy Rate	30.05	
8	Total Workers	7798	100.0
	Male	4606	59.07
	Female	3192	40.93
	Gender Gap in Work Participation Rate	18.14	
9	Main Workers	3794	100.0
	Male	3153	83.10
	Female	641	16.90
	Gender Gap in Work Participation Rate	66.20	
10	Marginal Workers	4004	100.0
	Male	1453	36.29
	Female	2551	63.71
	Gender Gap in Work Participation Rate	-27.42	
11	Household Industrial Workers	129	100.0
	Male	77	59.69
	Female	52	40.31
12	Cultivators	2841	100.0
	Male	1552	54.98

	Female	1279	45.02
13	Agricultural Labour	1706	100.0
	Male	625	36.64
	Female	1081	63.36
14	'Other Workers'	3122	100.0
	Male	2342	75.02
	Female	780	24.98

Source: Census of India, 2011

B. Population Composition

According to Census 2011, total population of the study area has been worked out to 16,797. The gender wise distribution of the above population is 8,536 (50.82%) male and 8,261 (49.18%) female. The overall sex ratio of the study area has been worked out to 968 females per 1,000 males. The entire population of the study area is distributed into approx. 3,405 households and the average household size is five.



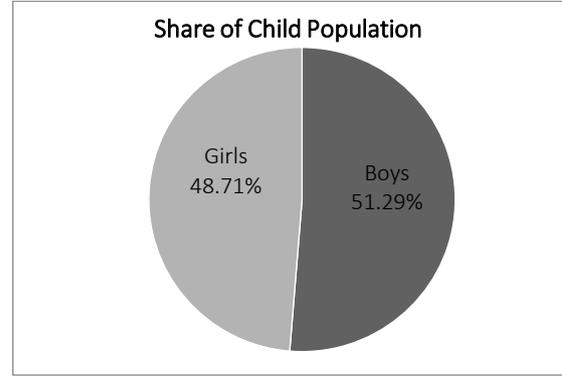
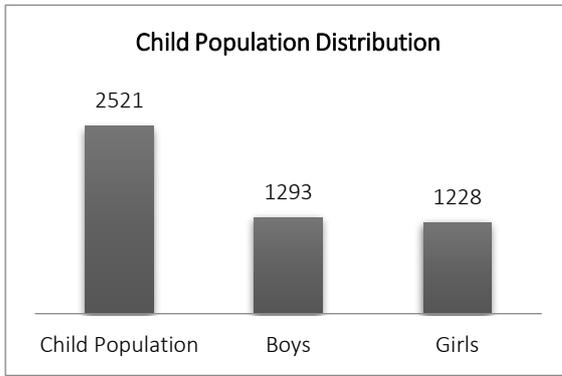
Village wise population distribution of the study area is given in the table below:

Village wise Population Distribution with Sex Ratio						
S. No.	Village	No. of HH	Population			Sex Ratio
			Total	Male	Female	
01	Naya Gaon	145	694	350	344	983
02	Baran	742	4062	2054	2008	978
03	Gamri	108	513	257	256	996
04	Aspur	778	3754	1919	1835	956
05	Tonkwasa	411	2003	1033	970	939
06	Karkoli	126	648	299	349	1167
07	Vara Kundli	129	556	294	262	891
08	Varaghoriya	457	2152	1111	1041	937
09	Amartiya	262	1211	607	604	995
10	Fatehpura	118	579	296	283	956
11	Kamla Amba	129	625	316	309	978
TOTAL		3405	16797	8536	8261	968

Source: Census of India, 2011

C. Child Population Distribution

In the study area, the total child population of 0-6 age group has been worked out to 2,521 which represent 15.01% of the total population. Of the total child population, 51.29 % are boys and remaining 48.71% are girl child. The child sex ratio in this age group is 950 girls per 1,000 boys.



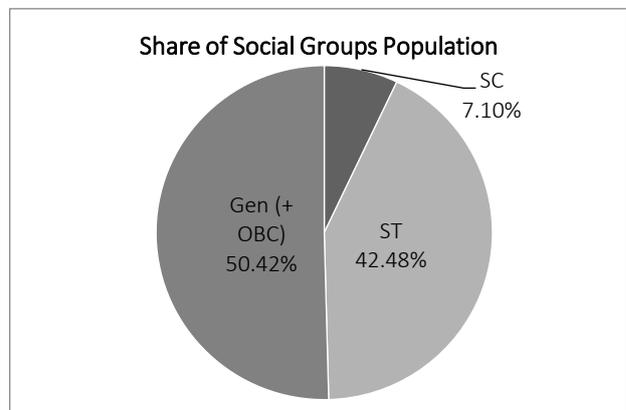
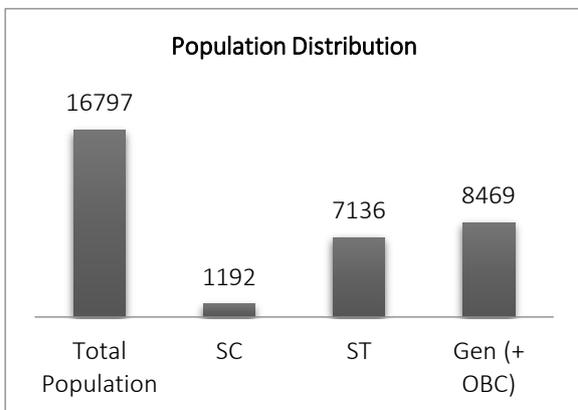
Village wise child population distribution of the study area is given in the table below:

S. No.	Village	Child Population (0-6) Age Group			Sex Ratio
		Total	Boys	Girls	
01	Naya Gaon	98	50	48	960
02	Baran	823	399	424	1063
03	Gamri	83	42	41	976
04	Aspur	473	261	212	812
05	Tonkwasa	273	144	129	896
06	Karkoli	95	39	56	1436
07	Vara Kundli	47	29	18	621
08	Varaghoriya	286	152	134	882
09	Amartiya	181	98	83	847
10	Fatehpura	57	31	26	839
11	Kamla Amba	105	48	57	1188
TOTAL		2521	1293	1228	950

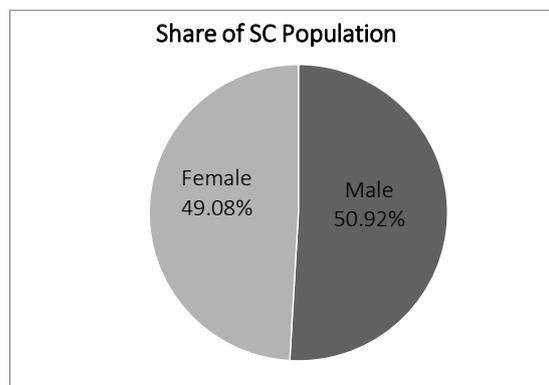
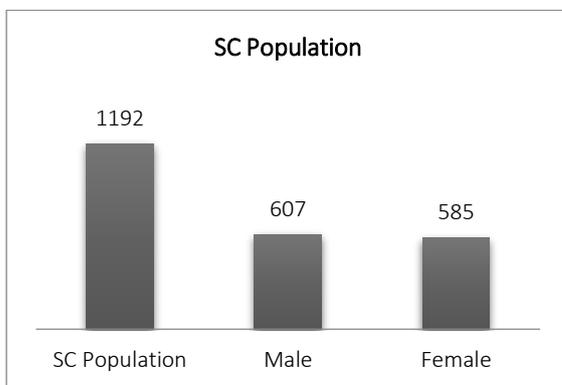
Source: Census of India, 2011

D. Social Group Population Distribution

Total population of the study area is distributed into different social groups like Scheduled Caste (SC), Scheduled Tribe (ST) and General Category (including OBC). The share of these social groups' population to the total population of the study area is 7.10%, 42.48% and 50.42% respectively.



- Scheduled Caste (SC) Population:** In the study area, Scheduled Caste population has been worked out to 1192 which constitute about 7.10% of the total population. Of this, 50.92% is male and remaining 49.08% is female. The sex ratio among Scheduled Caste population has been worked out to 964 females per 1,000 males.

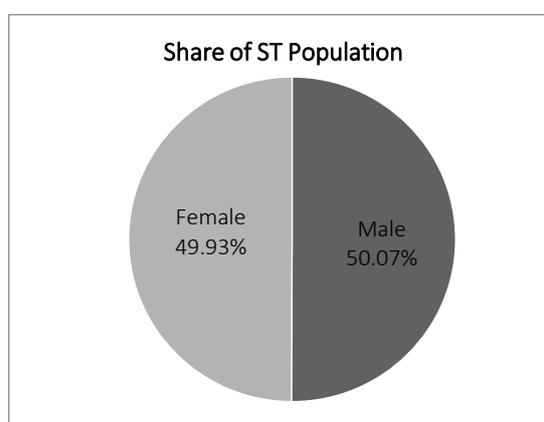
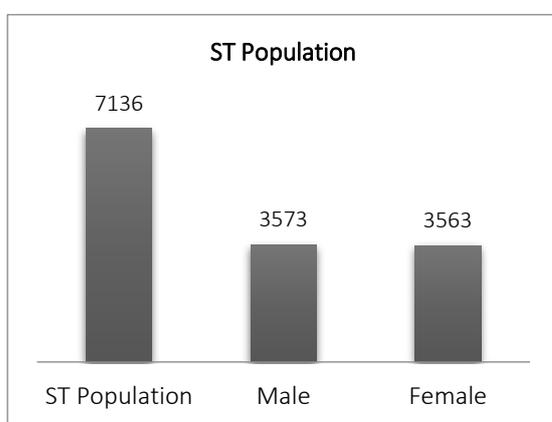


Village wise SC population distribution of the study area is given in the table below:

S. No.	Village	SC Population			Sex Ratio
		Total	Male	Female	
01	Naya Gaon	9	5	4	800
02	Baran	25	13	12	923
03	Gamri	0	0	0	000
04	Aspur	604	303	301	993
05	Tonkwasa	125	62	63	1016
06	Karkoli	41	19	22	1158
07	Vara Kundli	20	10	10	1000
08	Varaghoriya	233	127	106	835
09	Amartiya	113	58	55	948
10	Fatehpura	19	9	10	1111
11	Kamla Amba	3	1	2	2000
TOTAL		1192	607	585	964

Source: Census of India, 2011

- Scheduled Tribe Population:** The Scheduled Tribe population in the study area has been worked out to 7,136 which represent 42.48% of the total population. Of the total Scheduled Tribe population, 50.07% is male and 49.93% is female. The sex ratio among the Scheduled Tribe population has been worked out to 997 females per 1,000 males.

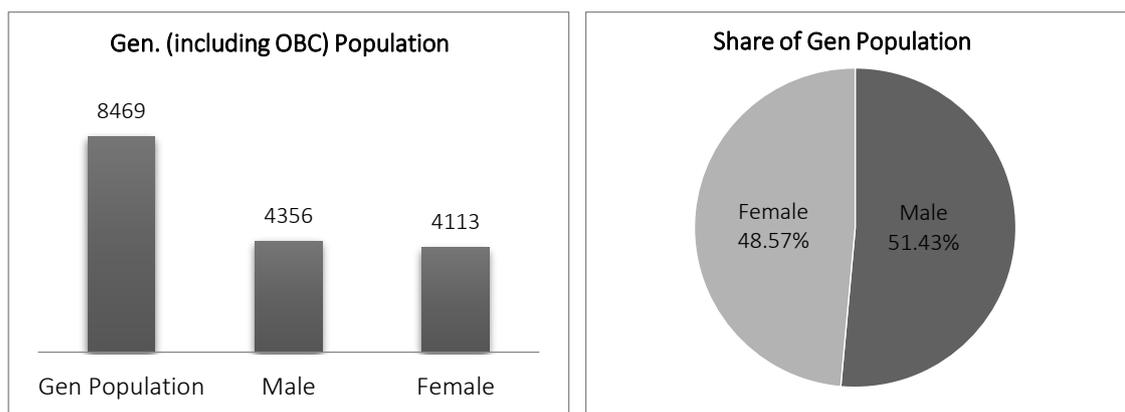


Village wise ST population distribution of the study area is given in the table below:

S. No.	Village	ST Population			Sex Ratio
		Total	Male	Female	
01	Naya Gaon	349	168	181	1077
02	Baran	3912	1968	1944	988
03	Gamri	192	94	98	1043

04	Aspur	462	233	229	983
05	Tonkwasa	656	344	312	907
06	Karkoli	353	168	185	1101
07	Vara Kundli	33	16	17	1063
08	Varaghoriya	560	284	276	972
09	Amartiya	163	74	89	1203
10	Fatehpura	60	30	30	1000
11	Kamla Amba	396	194	202	1041
TOTAL		7136	3573	3563	997
<i>Source: Census of India, 2011</i>					

- **General Category (including OBC) Population:** The population of this group has been worked out to 8,469 which is 50.42% of the total population of the study area. Of the total population of this group, 51.43% is male and 48.57% is female. The sex ratio among this group of population has been worked out to 944 females per 1,000 males.

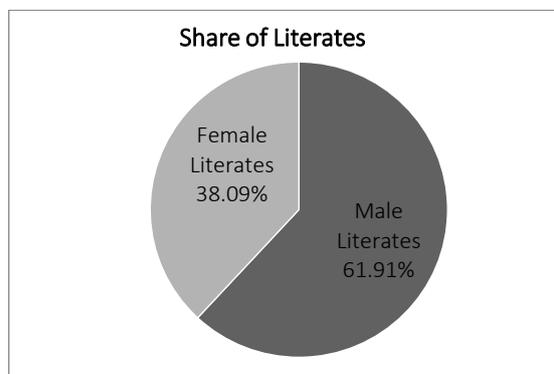
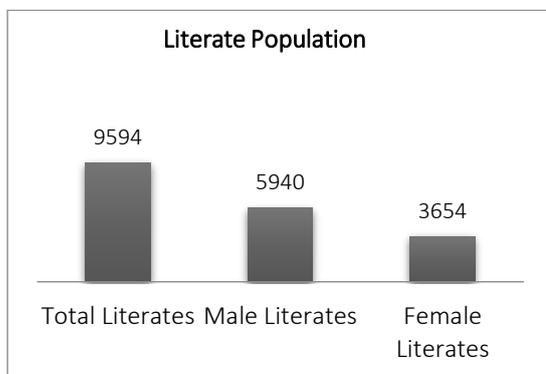


Village wise General Category (including OBC) population distribution of the study area is given in the table below:

S. No.	Village	GEN (including 'OBC') Population			Sex Ratio
		Total	Male	Female	
01	Naya Gaon	336	177	159	898
02	Baran	125	73	52	712
03	Gamri	321	163	158	969
04	Aspur	2688	1383	1305	944
05	Tonkwasa	1222	627	595	949
06	Karkoli	254	112	142	1268
07	Vara Kundli	503	268	235	877
08	Varaghoriya	1359	700	659	941
09	Amartiya	935	475	460	968
10	Fatehpura	500	257	243	946
11	Kamla Amba	226	121	105	868
TOTAL		8469	4356	4113	944
<i>Source: Census of India, 2011</i>					

E. Literates, Literacy Rate and Gender Gap in Literacy Rate

In the study area, 57.12% of the population is literate in which male literates are 61.91% and that of females are 38.09%. The overall literacy rate in the study area has been worked out to 67.20%. The male literacy rate is 82.01% and female literacy rate is 51.56%, creating a gender gap in literacy rate of 30.05%.



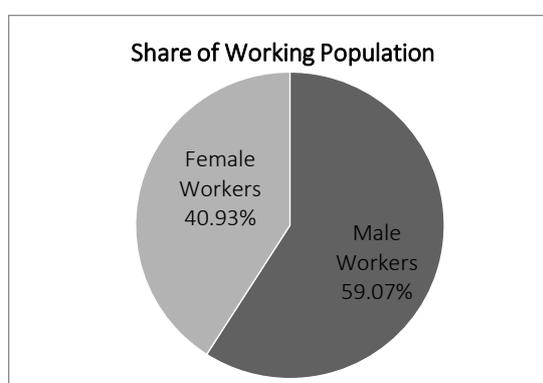
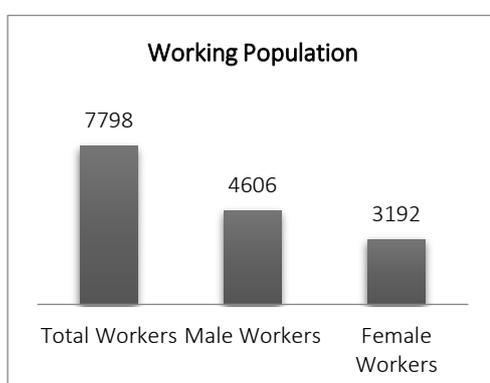
Village wise literate population and literacy rate is given in the table below:

S. No.	Village	Literate Population			Literacy Rate (%)		
		Total	Male	Female	Total	Male	Female
01	Naya Gaon	368	221	147	61.74	73.67	49.66
02	Baran	2067	1333	734	63.82	80.54	46.34
03	Gamri	211	143	68	49.07	66.51	31.63
04	Aspur	2590	1469	1121	78.94	88.60	69.07
05	Tonkwasa	1043	671	372	60.29	75.48	44.23
06	Karkoli	296	172	124	53.53	66.15	42.32
07	Vara Kundli	315	221	94	61.89	83.40	38.52
08	Varaghoriya	1256	798	458	67.31	83.21	50.50
09	Amartiya	723	448	275	70.19	88.02	52.78
10	Fatehpura	384	251	133	73.56	94.72	51.75
11	Kamla Amba	341	213	128	65.58	79.48	50.79
TOTAL		9594	5940	3654	67.20	82.01	51.96

Source: Census of India, 2011

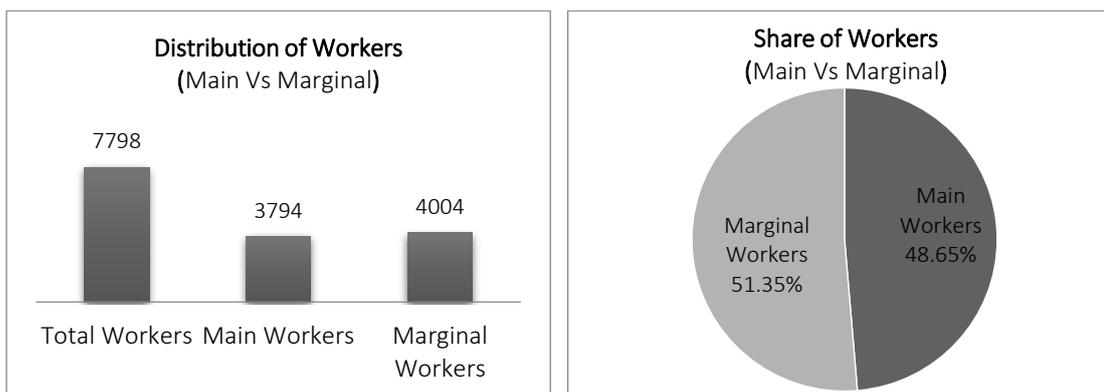
F. Workers and Work Participation Rate

The economic classification of workers as per Census 2011 is saying that total number of workers in the study area is 7,798 which constitute 46.42% of the total population. Of the total workers, 59.07% are males and remaining 40.93% are females. In absolute term, total number of male workers is 4,606 and that of female is 3,192. The gender gap in work participation rate is only 18.14%.



Further of the total workers, 48.65% are main workers and remaining 51.35% are marginal workers. Of the total main workers, 83.10% are male and remaining 16.90% are female which creates a gender gap in work participation rate of 66.20%. In case of marginal workers,

36.29% are male and 63.71% are female that creates a gender gap of minus (-) 27.42% in this segment of work participation.

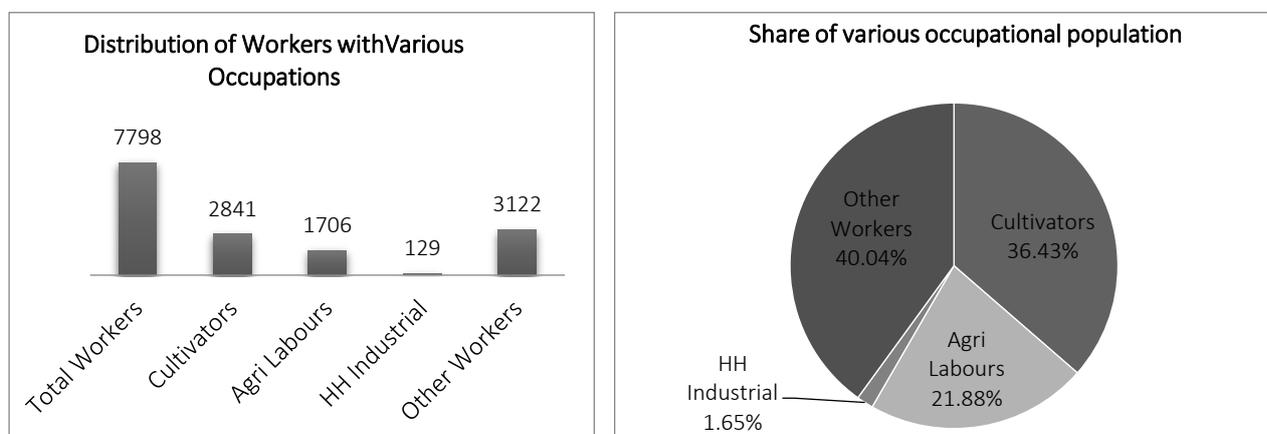


Village wise working population of the study area is given in the table below:

Village Name	Total Worker			Main Worker			Marginal Worker		
	T	M	F	T	M	F	T	M	F
Naya Gaon	175	159	16	140	137	3	35	22	13
Baran	1532	946	586	662	578	84	870	368	502
Gamri	307	160	147	112	96	16	195	64	131
Aspur	1406	1032	374	1073	908	165	333	124	209
Tonkwasa	1087	606	481	672	511	161	415	95	320
Karkoli	366	197	169	44	39	5	322	158	164
Vara Kundli	316	154	162	148	144	4	168	10	158
Varaghoriya	1239	641	598	439	407	32	800	234	566
Amartiya	667	347	320	137	121	16	530	226	304
Fatehpura	331	175	156	327	174	153	4	1	3
Kamla Amba	372	189	183	40	38	2	332	151	181
TOTAL	7798	4606	3192	3794	3153	641	4004	1453	2551

Source: Census of India, 2011

The workers are further divided into Cultivators, Agricultural Labours, Household Industrial Workers and 'Other Workers'. Their shares in the total workers are 36.43%, 21.88%, 1.65% and 40.04% respectively.



Distribution of working population with various occupations is given in table below:

S. No.	Village	Total Workers	Cultivators	Agricultural Labour	Household Industrial Workers	Other Workers
01	Naya Gaon	175	94	10	5	66
02	Baran	1532	664	549	11	308
03	Gamri	307	86	173	2	46
04	Aspur	1406	182	58	35	1131
05	Tonkwasa	1087	394	241	29	423
06	Karkoli	366	103	6	0	257
07	Vara Kundli	316	230	2	1	83
08	Varaghoriya	1239	699	33	17	490
09	Amartiya	667	113	402	21	131
10	Fatehpura	331	192	37	2	100
11	Kamla Amba	372	84	195	6	87
TOTAL		7798	2841	1706	129	3122

Source: Census of India, 2011

Agriculture and allied activities are the main occupation & sources of livelihood and income for most of the local people in the study area. Rabi and Kharif, both are the main crops. Wheat, gram, bajra, barley, jowar, guar, moong, moth, methi, isabgol are the main crops from production point of view in the study area. Vegetable and fruits are also being produced in the study area. Canals and Tube wells are main sources of irrigation in most of the part of the study area whereas most of the farmers belonging from the district Ajmer are mostly dependent on rain crops/kharif crops. In this part of the study area, most of the land is being irrigated by wells. Apart from this, other people are engaged in household industries and ancillary works.

G. Basic Amenities

The basic amenities like education, health, drinking water, electricity, approach road, transportation and other facilities available in the study area are given in the following table:

Basic Amenities Available in the Study Area		
EDUCATION		
Educational Institutions	Type of Institutes	Number
	Pre-primary School (Pvt.)	05
	Primary School (Govt.)	14
	Primary School (Pvt.)	05
	Middle School (Govt.)	09
	Middle School (Pvt.)	05
	Secondary School (Govt.)	04
	Secondary School (Pvt.)	04
	Senior Secondary School (Govt.)	02
HEALTH		
Health Facilities	Type of Facilities	Number
	Primary Health Centre	01
	Primary Health Sub-Centre	06
	Community Health Centre	01
	Maternity and Child Welfare Centre	02
	Hospital (Alternative Medicine)	02
	Dispensary	01
	Family Welfare Centre	01
	Non-Govt. Medical Facilities (For Out Patient)	06
	Non-Govt. Medical Facilities (For In & Out Patient)	01

	ASHA	11
	Anganwadi Centre (Nutritional Centre)	11
	Nutritional Centre- ICDS	11
WATER		
Drinking Water	Means of Drinking Water	No. of Villages
	Tap (Treated & Un-treated)	10
	Well (Covered & Un-covered)	07
	Hand Pump	10
	Tube wells	09
	River/Canal	01
	Tank	01
ELECTRICITY		
Electricity Supply	Types of Electricity Available	No. of Villages
	Power for Domestic Uses	11
	Power for Agriculture Uses	11
	Power for Commercial or Industrial Uses	08
ROAD		
Approach Road	Types of Approach Roads	No. of Villages
	Black Topped (Paved/Pucca) Road	05
	Gravel (Mud/Kachcha) Road	11
	Footpath Road	11
TRANSPORTATION		
Road Transportation	Types of Road Transportation Available	No. of Villages
	Public Bus Services	07
	Private Bus Services	08
	Auto/Modified Autos	05
	Taxi Services	05
OTHER AMENITIES		
Other Amenities	Agricultural Credit Society	02
	Public Distribution System Shop	06
	Post Office	01
	Sub-post Office	06
	Open Drainage	08
	Closed Drainage	06
<i>Source: Census of India, 2011</i>		

Basic amenities like water supply for drinking and other uses is available with various sources such as Tap (Treated & Un-treated), Well (Covered & Un-covered), Hand Pump, Tube wells, River/Canal and Tank etc. Electricity is available for domestic, agriculture and commercial or industrial uses in almost all over the study area. The study area having approach roads as Black Topped (Paved), Gravel and Footpath.